SHARP OPTONICA

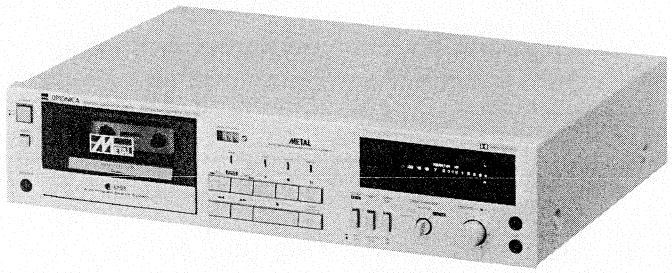
SERVICE MANUAL

RT-105H

ATSM481038DCK

SHAR-02722

APSS
Auto Program Search System



MODEL RT-105H

DOLBY SYSTEM ®

Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

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2722

SHARP CORPORATION OSAKA, JAPAN

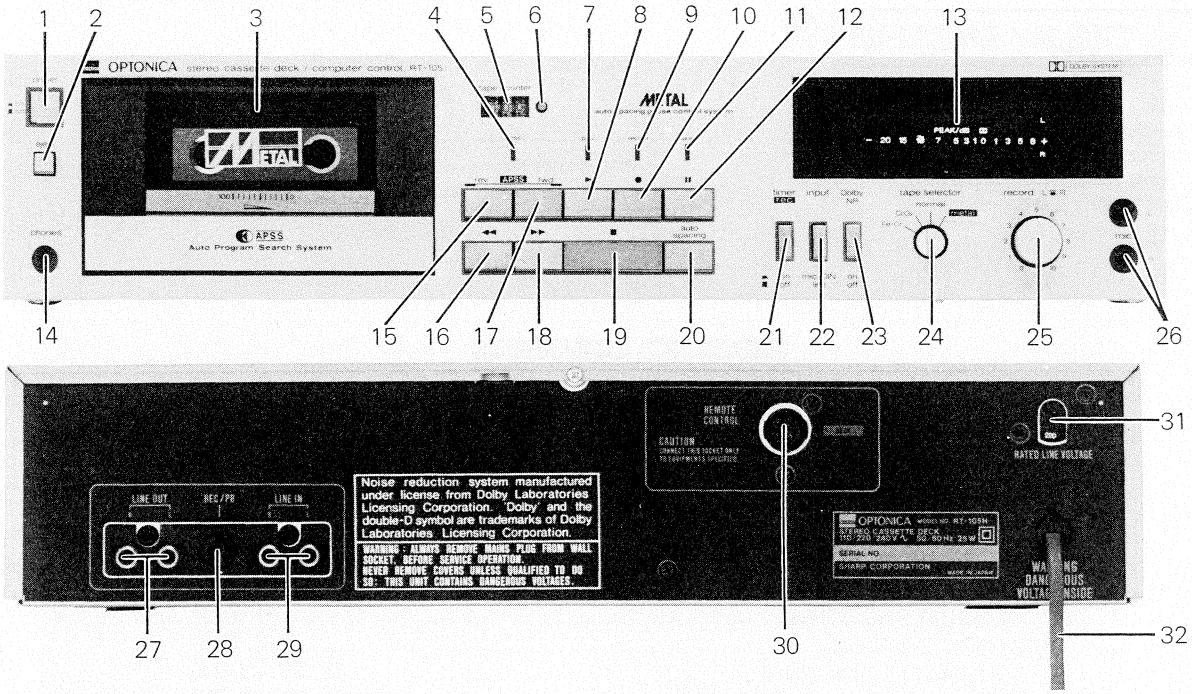
SPECIFICATIONS

Power source:	AC 110V/220V/240V, 50/60 Hz
Power consumption:	25W
Semi-conductors:	1 LSI (Large Scale Integrated Circuit) 5 ICs (Integrated Circuits) 51 Transistors 32 Diodes 4 LEDs (Light Emitting Diodes)
Dimensions: Width;	430 mm (17")
Height;	95 mm (3-3/4")
Depth;	320 mm (12-5/8")
Weight:	5.9 kg (13.0 lbs)
Tape:	Philips standard compact cassette tape
Tape speed:	4.8 cm/sec. (1-7/8 ips.)
Wow & flutter:	0.20% (DIN 45 500) 0.07% (WRMS)
Frequency range:	
Normal tape;	40 – 14,000 Hz (DIN 45 500) 40 – 13,000 Hz ±3dB
Fe-Cr tape;	40 – 16,000 Hz (DIN 45 500) 40 – 15,000 Hz ±3dB
Maxell UDXL II tape;	40 – 16,000 Hz (DIN 45 500) 40 – 15,000 Hz ±3dB
Metal tape;	40 – 17,000 Hz (DIN 45 500) 40 – 16,000 Hz ±3dB
S/N ratio (Use of MAXELL UDXL II tape):	
Dolby NR off;	56 dB
Dolby NR effect;	10 dB (at over 5kHz)
Input sensitivity and input impedance:	
Microphones;	0.2 mV (6.8K Ohms)
DIN record/playback;	0.2 mV (6.8K Ohms)
Line in;	50 mV (50K Ohms)
Output level and load impedance:	
Headphones;	40 mV ("0" dB), 8 Ohms
DIN record/playback;	530 mV ("0" dB), 50K Ohms
Line out;	530 mV ("0" dB), 50K Ohms

Specifications are subject to change without prior notice.

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

PARTS LAYOUT



1. Power switch
2. Cassette eject button
3. Cassette compartment
4. APSS indicator
5. Digital tape counter
6. Tape counter reset button
7. Play indicator
8. Playback key
9. Record indicator
10. Record key
11. Pause indicator
12. Pause key
13. Fluorescence peak level display meter
14. Stereo headphones jack
15. APSS reverse key
16. Rewind key
17. APSS forward key
18. Fast forward key
19. Stop key
20. Auto-spacing key
21. Timer recording stand by switch
22. Input selector switch
23. Dolby NR switch
24. Tape selector switch
25. Recording level control knob
26. Microphone sockets
27. Line output sockets
28. DIN recording/playback socket
29. Line input sockets
30. Remote control socket
31. AC voltage selector
32. AC supply lead

AC MAINS VOLTAGE SELECTION

Check AC voltage level setting at rear of unit before plugging in AC supply lead. If necessary, adjust SELECTOR to correspond to the AC supply voltage of your area.

Selector Adjustment:

Voltage selector is on the rear of the unit. Turn the selector with a screwdriver in either direction unit the correct voltage can be read in the window next to the adjustment screw.

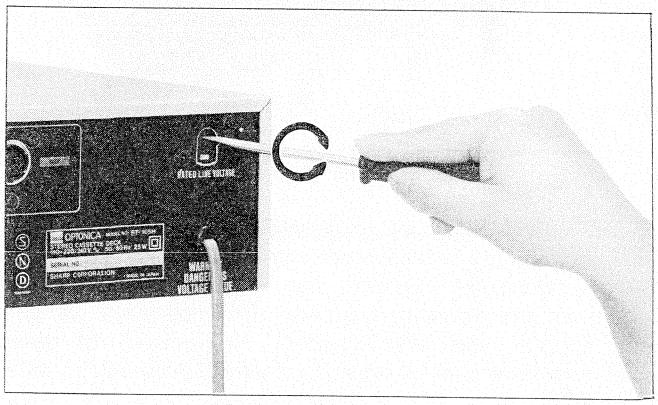


Figure 3-1

DISASSEMBLY

Note:

Prior to disassembly, never forget to remove the AC supply lead from a wall outlet and this unit output plug from the rear of the set.

A. REMOVAL OF CABINET

1. Remove five screws from the cabinet – two at the right, two at the left, and one at the rear. (See Fig. 3-2.)
2. Slide the cabinet backward, and lift up and remove it while giving a force to its bottom.

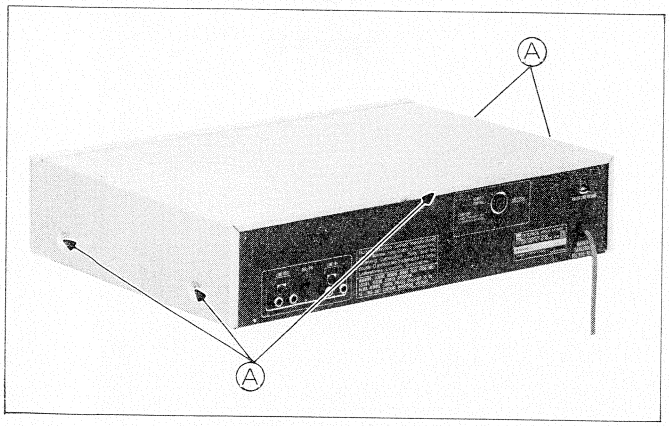


Figure 3-2

B. REMOVAL OF BOTTOM LID

1. Turn the set upside down; remove two screws from the bottom lid, then slide the bottom lid backward to remove it. (See Fig. 3-3.)

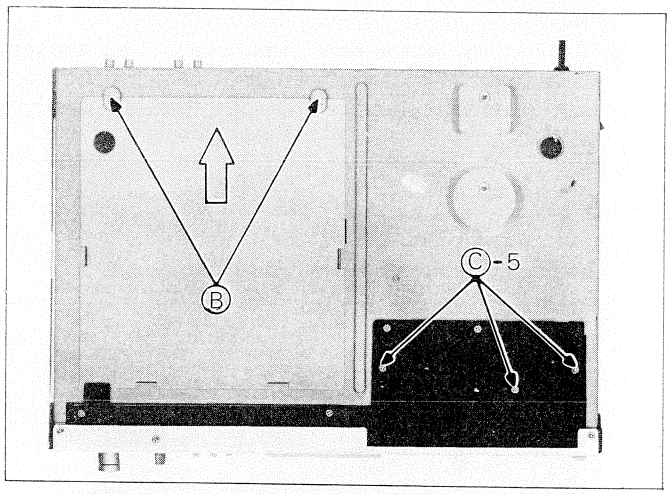


Figure 3-3

C. REMOVAL OF MECHANISM BLOCK

1. Remove the cabinet according to the instruction in "Removal of Cabinet." (See Fig. 3-2)
2. Take counter drive belt off the counter. (See Fig. 3-4.)
3. Remove the rod interlocked with the record/playback selector switch and record/payback lever. (See Fig. 3-4.)
4. Pull out two sockets (CNS1, CNS2) from the mechanism relay P.W. Board. (See Fig. 3-4.)
5. Turn the set upside down, and remove three screws. (See Fig. 3-3.)
6. Replace the set and remove three screws. (See Fig. 3-4.)
7. Push the cassette eject button to open the cassette holder, then take the mechanism block out.

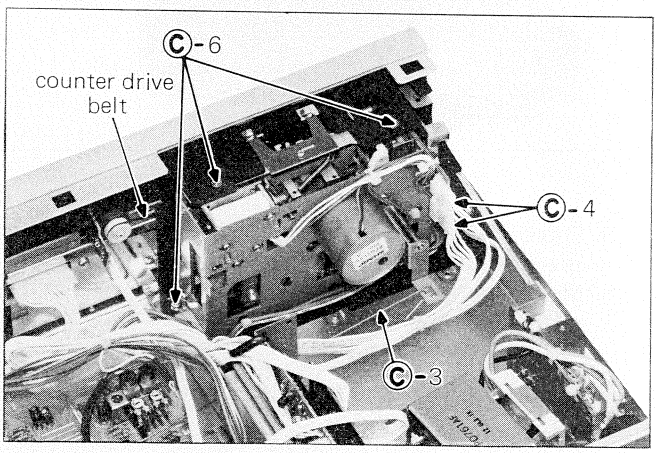


Figure 3-4

D. DISASSEMBLY AND REASSEMBLY OF MAIN CHASSIS BLOCK AND BACK CHASSIS BLOCK

1. Take off the record lever spring. (See Fig. 4-1.)
2. Remove four screws from the back chassis block. (See Fig. 4-1 and 4-2.)
3. Remove drive belt from the motor pulley.
4. Gently take out the back chassis block. Thus the main chassis block and back chassis block becomes free from each other. In other to reassemble them, take the steps as follows.

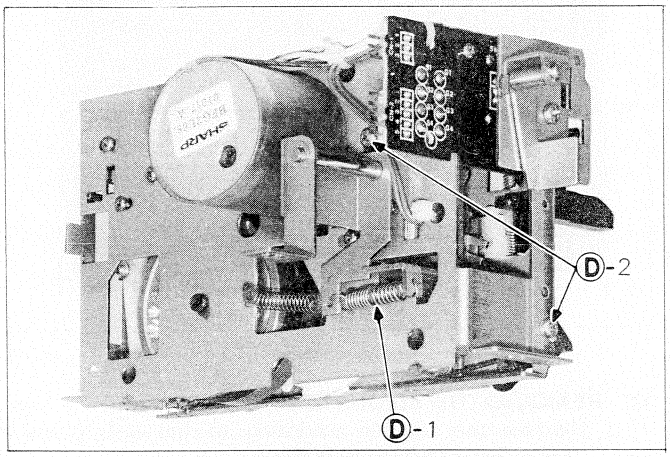


Figure 4-1

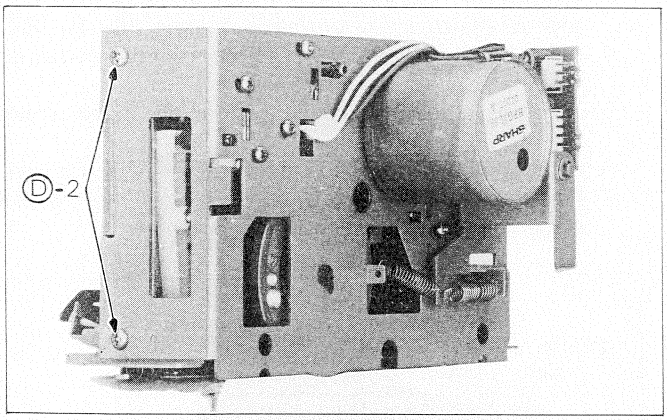


Figure 4-2

5. Stretch the drive belt over the solenoid interlocking lever as a provisional hang. (See Fig. 4-3)
6. Make sure the record mechanical parts are just in their places: one end of the record switch lever spring should be inside the square hole of the solenoid interlocking lever, and the other end be between the record lever and the record switch lever. (See Fig. 4-3.)
7. Match the back chassis block with the main chassis block making sure that three solenoid pins have been in their places. At the time push the cassette detector switch to touch the cassette holder lock lever, for this makes it easier to assemble the two blocks.
8. Tighten four screws at the back chassis block, and the drive belt now can be settled perfectly on the motor pulley. Thus the jobs you have to do are completed.

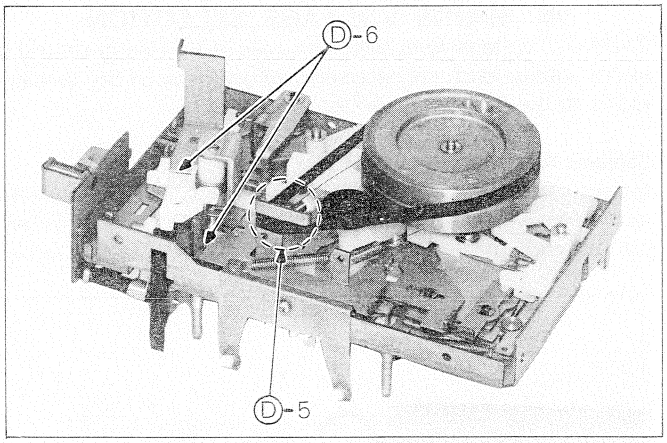


Figure 4-3

E. REPLACEMENT OF FLYWHEEL

Be sure to use a bladed screwdriver as shown in Fig. 4-4 when taking the flywheel out in the arrowed direction. (Without the screwdriver applied, the oilless metal will come off together with the flywheel.) To moisten the take-up pulley with alcohol or rubber cleaner will help you to take it out easily.

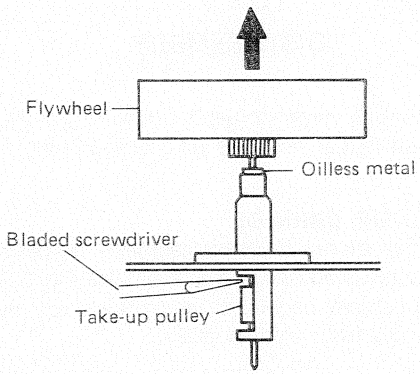


Figure 4-4

MECHANICAL ADJUSTMENT

TAKE-UP IDLER PRESSURE ADJUSTMENT

1. Put the set in playback mode.
2. Using a tension gauge (100 grams), secure its string onto the take-up idler (at the point Ⓐ), and pull the gauge with such force that the take-up idler will get off the take-up turntable. Then, gradually weaken the force of tension gauge and read the value when the take-up turntable begins to rotate. Make sure the gauge reading is 45 to 75 grams.
3. If the value is not satisfied, adjust it by bending the pressure roller spring or replace the spring with a new one.

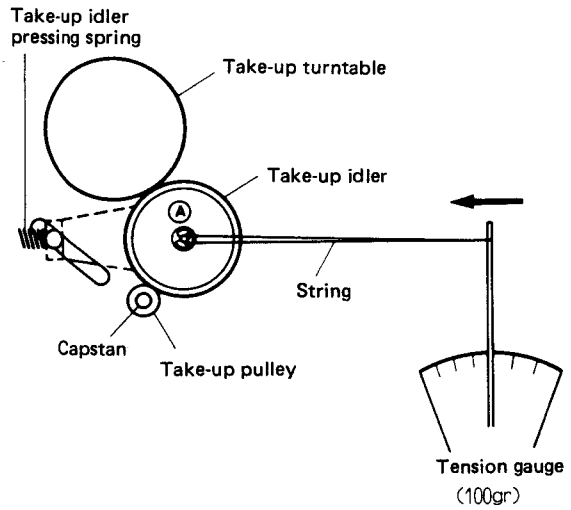


Figure 5-1

PINCH ROLLER PRESSURE ADJUSTMENT

1. Put the set in playback mode.
2. Using a tension gauge, press it against the pinch roller lever to make the pinch roller away from the capstan. Then, gradually weaken the force of tension gauge and watch to see what value the tension gauge will read when the pinch roller hits the capstan, i.e. when it begins to rotate again. The value should be within 275 to 375 grams.
3. If the value is not satisfied, replace the pressure roller spring with a new one.

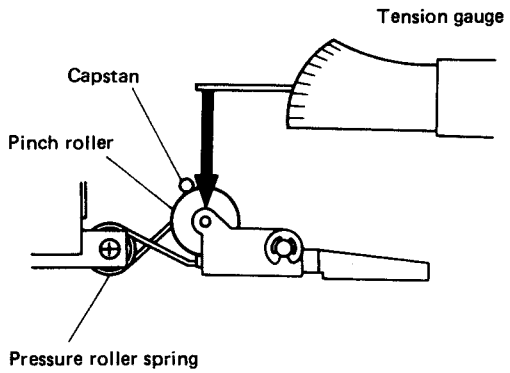


Figure 5-2

FLYWHEEL THRUST CLEARANCE ADJUSTMENT

1. Slowly turn the flywheel thrust adjusting screw for adjusting the flywheel thrust clearance clockwise until there will be no thrust clearance.
2. Then, turn the flywheel thrust adjusting screw counter-clockwise by 1/5 to 3/5 turn from the above point. Since screw's pitch is 0.5 mm, a thrust clearance of 0.1 to 0.3 mm is then produced.

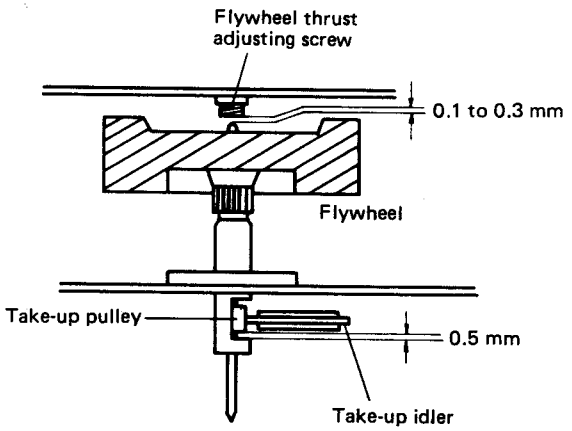


Figure 5-3

TORQUE CHECK AT PLAY, FAST FORWARD AND REWIND MODES

1. Torque measuring reel on the turntable (on its take-up side at play or fast forward mode, and on its supply side at rewind mode). Then, using a tension gauge, apply its force to the torque measuring reel toward the direction reverse to that where the turntable is rotating.
2. Reduce, then, the force of tension gauge gradually, and read the torque value when the rotational speed of the turntable becomes almost constant.
3. The torque values in each mode are as specified below.

Mode	Torque value
Playback	35 to 60 gram. cm
Fast forward	70 to 110 gram. cm
Rewind	70 to 100 gram. cm

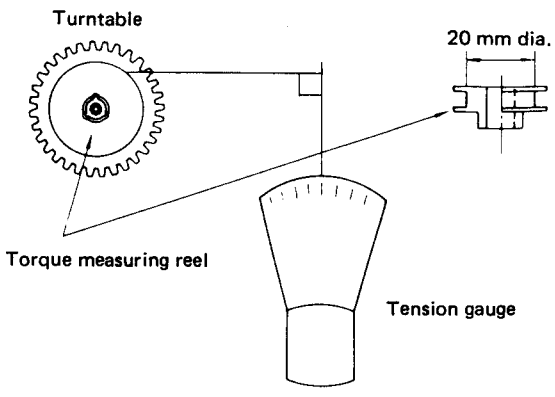


Figure 5-4

TAPE SPEED ADJUSTMENT

1. Connect a frequency counter, arross a 50 Kohm resistor, to the LINE output socket (SO2-A or SO2-B).
2. Play back a test tape (TEAC, MTT-111, 3 kHz prerecorded) at the midpoint but not at the running start or end point.
3. Use a bladed screwdriver (for high frequency adjustment) to adjust, through the adjusting hole at the bottom of motor, the variable resistor so that the reproduced frequency becomes 2960 to 3000 Hz.

Note:
Before the adjustment, check that there is no stain nor impurities on the motor pulley, drive belt, flywheel, take-up pulley, take-up idler and take-up turntable.

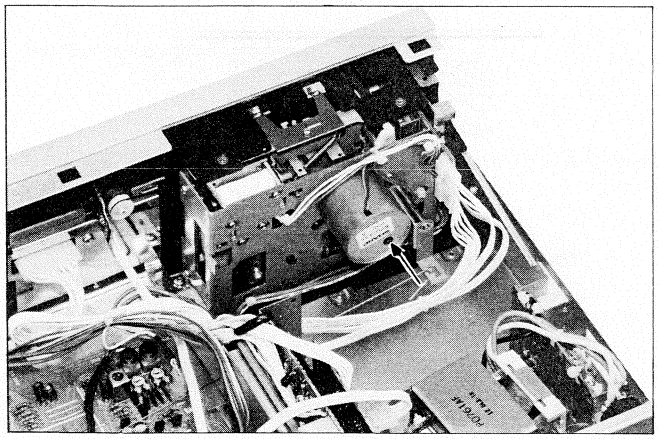


Figure 6-1

HEAD STROKE ADJUSTMENT

1. Put the set in playback mode, then check that the head stroke for either of the erase head and record/playback head is within the specified values shown in Fig. 6-3.
2. Put the set in APSS mode, then check that the head stroke for either of the erase head and record/playback head is within the specified values shown in Fig. 6-3.
3. If the head stroke is not satisfied in the step 2, adjust it bending the APSS lever shown in Fig. 6-2.
   - Over 5 mm → arrow A direction.
   - Below 4.7 mm → arrow B direction.

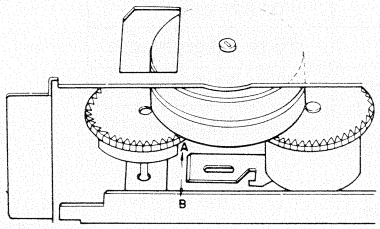


Figure 6-2

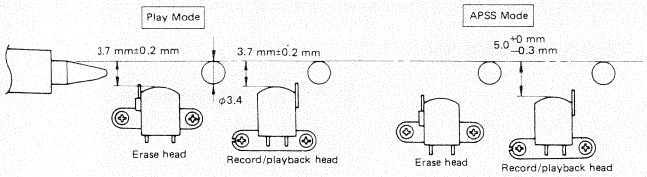


Figure 6-3

SOLENOID ADJUSTMENT

1. Playback solenoid (See Fig. 6-4)
   When the playback solenoid turns on the attract its pin in "E" direction, the mechanism gets in playback mode: that is,, the playback cam lock lever rotates clockwise so that the part "A" of the playback cam becomes free from the part "B" of the playback cam lock lever; the playback cam rotates counterclockwise via the playback cam spring and drive gear; then the part "A" of the playback cam hits the part "C" of the playback cam lock lever so that the playback cam stops to rotate. For a ideal motion of the mechanism, adjust the position of the playback solenoid so that the clearance "D" will be 0.1 to 0.5 mm when the playback solenoid pin is attract toward the "E" direction. Repeat this several times, and fasten the solenoid screw.

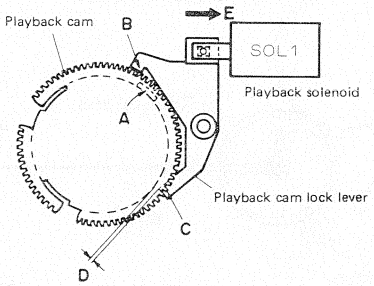


Figure 6-4

2. Pause solenoid (Fig. 6-5)
   When the pause solenoid turns on to attract its pin in "A" direction, the mechanism gets in pause mode: that is, the pause cam release lever rotates clockwise, and so does the pause cam lock lever to approach the side surface of the main chassis.
   Adjust the position of the pause solenoid so that the clearance "C" becomes 0.1 to 0.5 mm when the pause solenoid pin is attract toward "A" direction. Repeat this several times, and fasten the solenoid screw.
3. Wind solenoid (See Fig. 6-5)
   When the wind solenoid turns on to attract its pin in "B" direction, the mechanism gets in ,wind mode: that is, the solenoid interlocking lever and cam lock interlocking lever rotate clockwise, and so does the pause cam lock lever to approach the side surface of the main chassis.
   Adjust the position of the wind solenoid so that the clearance "C" becomes 0.1 to 0.5 mm when the wind solenoid pin is pulled toward "B" direction. Repeat this several times, and fasten the solenoid screw.

Note:
To obtain the attract of the solenoid, apply voltage to the solenoid, or push the part "E" by hand: do not push the part "D" as this causes the solenoid to produce improper attract.

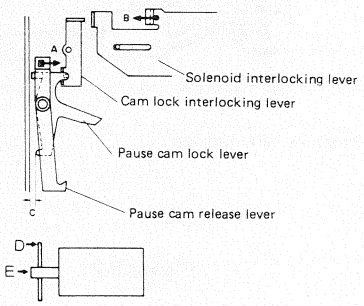
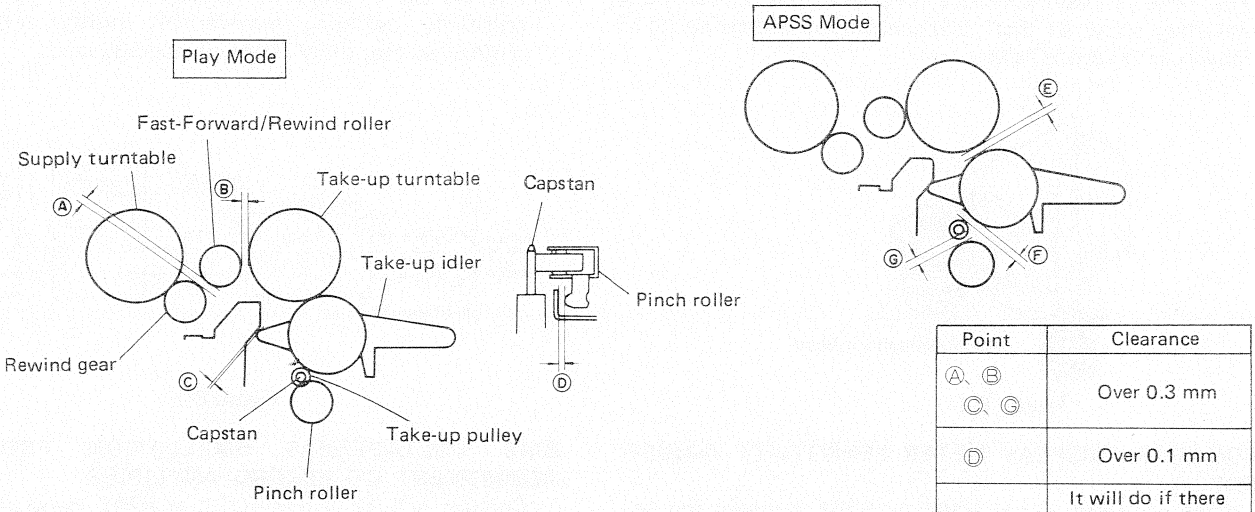


Figure. 6-5

CLEARANCE CHECKING

1. Put the set in playback mode, then check that a clearance between the parts is as specified — carry out this check for all the stated parts.
2. Put the set in APSS mode, then check that a clearance between the parts is as specified — carry out this check for all the stated parts.



Point	Clearance
Ⓐ, Ⓑ Ⓒ, Ⓖ	Over 0.3 mm
Ⓓ	Over 0.1 mm
Ⓔ, Ⓕ	It will do if there exists an clearance in either Ⓔ or Ⓕ.

Figure 7-1

CIRCUIT ADJUSTMENT

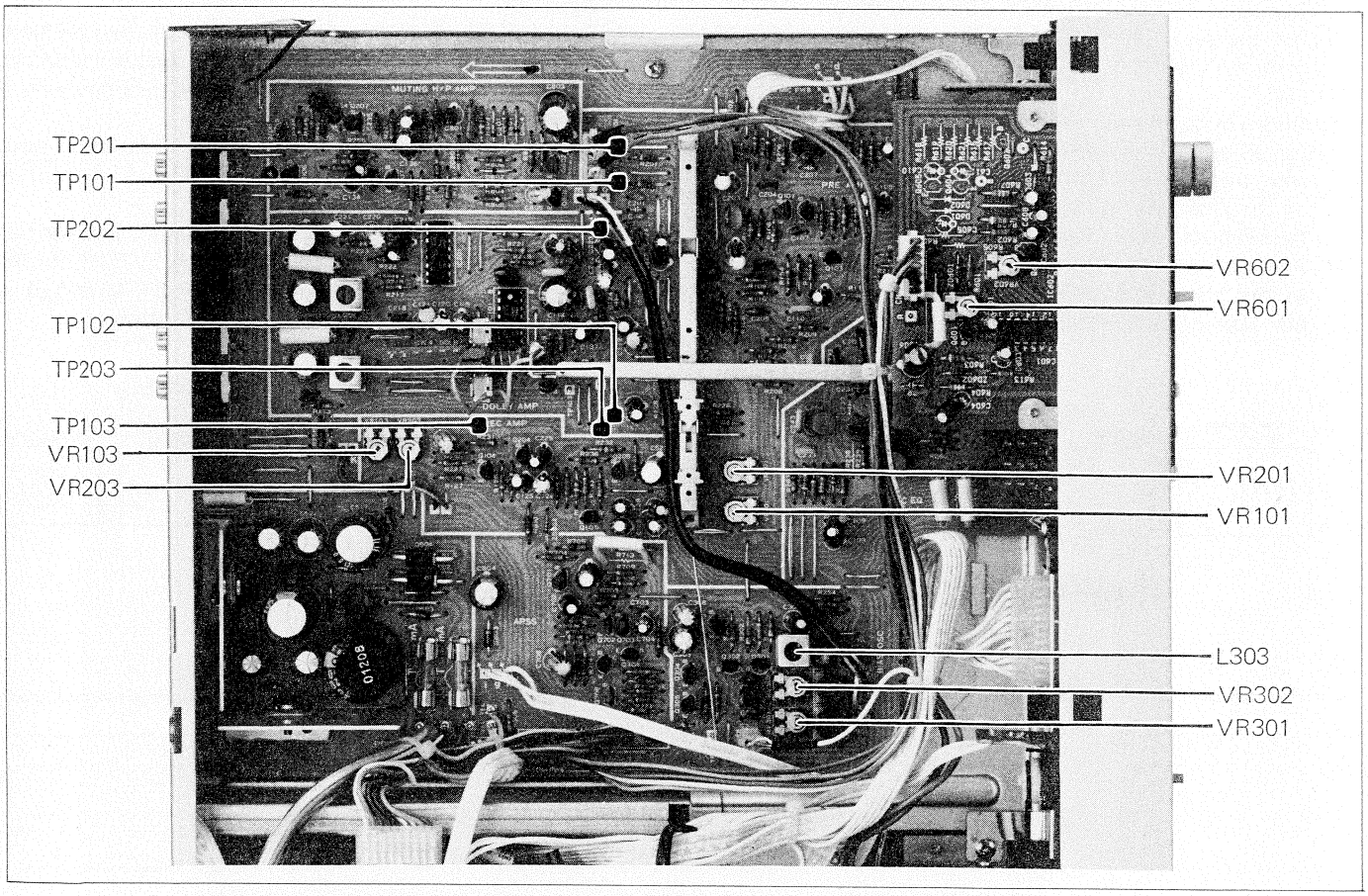


Figure 7-2

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

1. Connect VTVM between the test point (TP103 or TP203) on the record/playback amplifier P.W. board and ground.
2. Load the set with a test tape (MTT-114, 10 kHz, 250 pWb/mm, −10dB recorded).
3. Set the tape selector switch (SW2) at "normal", and the Dolby NR switch (SW4) at "off" position.
4. Put the set in playback mode, then adjust the head azimuth adjusting screw so that playback output voltage becomes maximum on the VTVM.

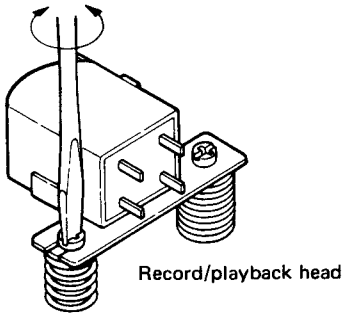


Figure 8-1

PEAK LEVEL DISPLAY METER SENSITIVITY ADJUSTMENT

1. Connect VTVM, across R101 or R201, between the test on the record/playback amplifier P.W. board and ground.
2. Set the tape selector switch (SW2) at "normal", and the Dolby NR switch (SW4) at "off" position.
3. Load the set with a blank tape.
4. Connect a low frequency oscillator to the LINE input socket (SO2-C or SO2-D), and apply a signal of oscillation frequency 400 Hz, 316 mV (−10 dB) to the set.
5. Put the set in record mode, then adjust the record level control (VR102 or VR202) so that the VTVM reads 550 mV.
6. Once rotate the semi-variable resistor (VR601 or VR602) for adjustment of peak level display meter counterclockwise, then gradually turn it back until the segment "−1 dB" of the peak level display meter lights completely but with the segment "0 dB" flashing intermittently.
7. Again adjust the record level control (VR102 or VR202) so that the VTVM reads 610 mV, with the segment "+1 dB" flashing or vanishing.

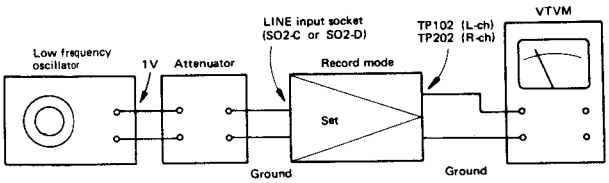


Figure 8-3

PLAYBACK SENSITIVITY ADJUSTMENT

1. Connect VTVM between the test point (TP103 or TP203) on the record/playback amplifier P.W. board and ground.
2. Load the set with a test tape (MTT-150, 400 Hz, 200 pWb/mm recorded).
3. Set the tape selector switch (SW2) at "normal" position, and the Dolby NR switch (SW4) at "off" position.
4. Put the set in playback mode, then adjust the playback sensitivity adjusting semi-variable resistor (VR101 or VR201) so that the VTVM will read 580 mV.

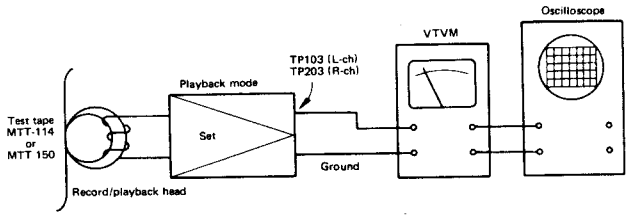


Figure 8-2

BIAS VOLTAGE/BIAS OSCILLATION FREQUENCY ADJUSTMENT OF RECORD AMPLIFIER

1. Connect VTVM, across R101 or R201, between the test point (TP101 or TP201) on record/playback P.W. board and ground.
2. Set the tape selector switch (SW2) at "metal" position, and Dolby NR switch (SW4) at "off" position.
3. Connect the vertical input terminal of oscilloscope to VTVM and its horizontal input terminal to low frequency oscillator.
4. Put the set in record mode, and adjust the bias oscillation coil (L303) so that the bias oscillation frequency becomes 105 kHz ± 5 kHz, while watching Lissajou's figure on the oscilloscope.
5. Adjust the bias current regulating semi-variable resistor (VR301 or VR302) so that the indicated value of the VTVM becomes 69 mV ± 6 mV.
6. Set the tape selector switch at "normal" position, and make sure if the following values of the VTVM are indicated at each position: 38 mV at "normal", 49 mV ±4 mV at "CrO_2", 41 mV ± 3 mV at "Fe-Cr" position.

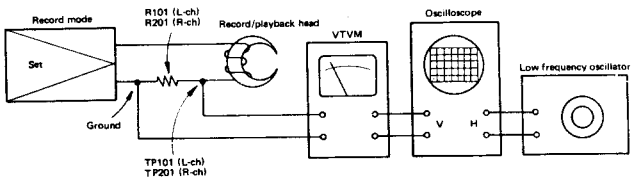


Figure 8-4

ERASE VOLTAGE CHECK OF RECORD AMPLIFIER

1. Connect VTVM between the leg of the semi-variable resistor (VR301 or VR302) on the record/playback amplifier P.W. board and ground.
2. Set the tape selector switch (SW2) at "metal" position.
3. Put the set in record mode, then see that the VTVM is reading 38 V ± 6 V.

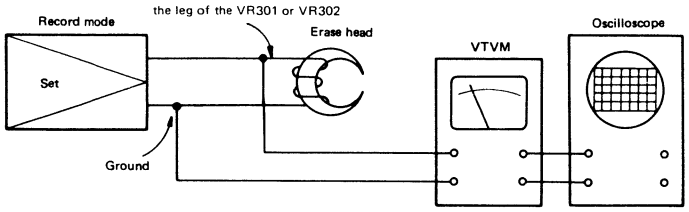


Figure 9-1

DOLBY NR CIRCUIT CHECK

1. Connect VTVM between the test point (TP103 or TP203) on record/playback amplifier P.W.board and ground.
2. Connect low frequency oscillator to the LINE input socket (SO2-C or SO2-D), and apply a signal of oscillation frequency 100 Hz, –35 dB (0 dB = 1 V) to the set.
3. Load a normal tape into the set, and set the Dolby NR switch (SW4) at "off" position.
4. Put the set in record mode, then adjust the record level control (VR102 or VR202) so that VTVM reads 32.6 mV.
5. Re-position the Dolby NR switch (SW4) to "on" position.
6. Allow the low frequency oscillator to produce 1 kHz, 10 kHz and 12.5 kHz signals, then see that the VTVM reading for each signal is as specified in Table 9-1.
7. Similarly to the step 2, apply a signal of oscillation frequency 100 Hz, –50 dB (0 dB = 1V) to the set, then put the set in record mode and adjust the record level control (VR102 or VR202) so that VTVM reads 5.8 mV.
8. Similarly to the step 6, allow the low frequency oscillator to produce 1 kHz, 10 kHz and 12.5 kHz signals, then see the VTVM reading for each signal is as specified in Table. 9-2.

Oscillation frequency	1 kHz	10 kHz	12.5 kHz
VTVM reads	45.7 to 81 mV	44.5 to 70 mV	42.6 to 68.2 mV

Talbe 9-1

Oscilation frequency	1 kHz	10kHz	12.5 kHz
VTVM reads	8.2 to 16.4 mV	13.7 to 24.9 mV	13.5 to 23.4 mV

Table 9-2

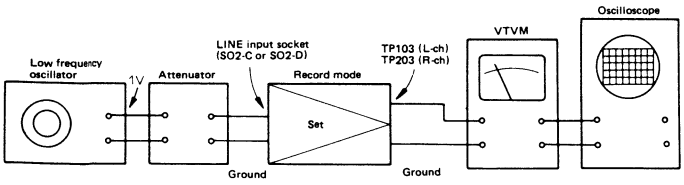


Figure 9-2

RECORD/PLAYBACK SENSITIVITY ADJUSTMENT

1. Connect VTVM between the test point (TP102 or TP202) on the record/playback P.W. board and ground.
2. Set the tape selector switch (SW2) at "normal" position, and Dolby NR switch (SW4) at "off" position.
3. Load a normal tape (TEAC, MTT-502) into the set.
4. Connect low frequency oscillator to the LINE input socket (SO2-C or SO2-D), and apply a signal of osciallation frequency 400 Hz, 316 mV (–10 dB) to the set.
5. Put the set in record mode, and adjust the record level control (VR102 or VR202) so that VTVM reads 390 mV.
6. Playback the normal tape which has been recorded in the step 5, then adjust the semi-variable resistor for record/ playback sensitivity adjustment (VR103 or VR203) so that VTVM reads 390 mV.
7. Repeat the steps 5 and 6 until the VTVM reading becomes steady within 390 mV ± 20 mV.
8. Replace the normal tape with a CrO_2 tape (MAXELL UDXL II), then set the tape selector switch (SW2) at "CrO_2" position and put the set in record mode.
9. Playback the CrO_2 tape which has been recorded in the step 8, then see that VTVM is reading 320 mV to 460 mV.
10. Replace the CrO_2 tape with a Fe-Cr tape (SONY CS-30), then set the tape selector switch (SW2) at "Fe-Cr" position and put the set in record mode.
11. Playback the Fe-Cr tape which has been recorded in the step 10, then see that VTVM is reading 320 mV to 460 mV.
12. Replace the Fe-Cr tape with a metal tape (TDK AC-711), then set the tape selector switch (SW2) at "metal" position and put the set in record mode.
13. Playback the metal tape which has been recorded in the step 12, then see that VTVM is reading 320 mV to 460 mV.

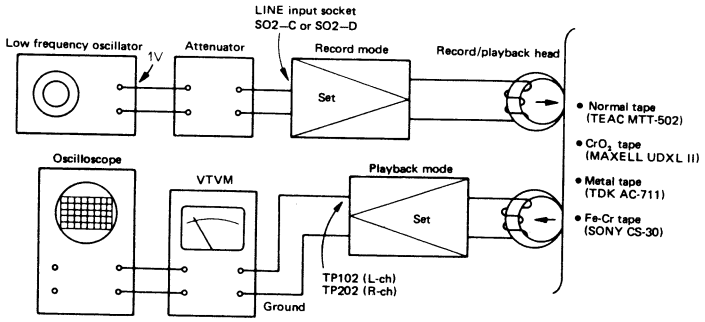


Figure 9-3

CIRCUITS EXPLANATION

< Tape Deck Control Section>

The RT-105H includes a 4 bit/1 chip microprocessor by which the following six functions are controlled.

1. Mechanism control
2. Tape end detection and auto stop
3. Driving of mechanism mode indicator
4. Timer start
5. On/off detection of record switch (with erase protection)
6. Muting of signals for playback, record, APSS modes and level meter indication, and on/off control of record bias oscillation.

Mechanism Control

All the mechanism of the RT-105H is under control by three plunger solenoids and one DC motor.

The three plunger solenoids are SOL1, SOL2 and SOL3 which are called a playback solenoid, pause solenoid and wind solenoid respectively, and two detector switches (SW5 and SW6) are connected with them to send their information to the microprocessor. Then the microprocessor feeds back its intrusion to control the mechanism of the RT-105H.

1. Motor
   DC motor with electronic control is used, and its functions are:
   a. drive the capstan
   b. activate the subchassis
   c. drive the turntable through the plunger-solenoids
2. Playback solenoid (SOL1)
   The playback solenoid is turned on when the set is in playback, record, pause, record stand by, auto spacing, forward APSS and/or reverse APSS mode. With the solenoid turned on, the subchassis in connection with the record/playback head and erase head is situated higher in these modes than in stop mode.
3. Pause solenoid (SOL2)
   The pause solenoid is turned on when the set is in pause and record stand by modes. Also it turns on for 50 msec following a push of the fast forward, rewind, forward APSS and/or reverse APSS key.
4. Wind solenoid (SOL3)
   The wind solenoid is turned on when the set is in fast forward, rewind, forward APSS and reverse APSS modes. Also it turns on for 250 msec following a push of the record key or the record switch lever.
5. Cassette detector switch (SW5)
   The cassette detector switch turns on when the cassette holder, if loaded with a cassette tape, is closed, and turns off when the eject button is pushed to open the cassette holder.
   With the switch turned on, the motor starts rotating and with the switch turned off, all the mechanism does no longer start even if any mechanism control keys is pushed.
6. Record switch with erase protection (SW6)
   With the erase protection tab of cassette tape removed even if the record key is pushed, the record switch remains off: at the time, the record switch lever hits the erase protector lever to prevent this switch from turning on.
   With the erase protection tab not removed, the erase protection lever moves up to be away from the record switch lever, so that the record switch turns on when the record key is pushed. The set will then get in record stand by mode.

Mechanism mode	Stop	Play-back	Fast-Forward	Rewind	Pause	Record stand by	Record	Auto spacing	Forward APSS	Reverse APSS
Motor	0 (without cassette) 1 (with cassette)	1	1	1	1	1	1	1	1	1
Playback solenoid	0	1	0	0	1	0 (100 msec) ↓ 1 (50 msec) 0 (100 msec)	1	1	1	1
Pause solenoid	0	0	↓ 1 0 (50 msec)	↓ 1 0 (50 msec)	1	↓ 0 1 (150 msec)	0	0	0 ↓ 1 (100 msec) 0 (50 msec)	0 ↓ 1 (100 msec) 0 (50 msec)
Wind solenoid	0	0	↓ 0 1 (200 msec)	1	0	↓ 1 0 (250 msec)	0	0	↓ 0 1 (300 msec)	↓ 0 1 (150 msec)

0: OFF state.
1: ON state.

Table 10-1 Mechanism Modes versus Motor and Solenoids in Action

Pin No.	Name	Input/Output	Application	Pin No.	Name	Input/Output	Application
1	CL_1		Clock oscillation	22	PG_0	Output	Pause indicator drive output
2	PC_0	Input	Remote control signal input	23	PG_1	Output	Auto spacing indicator drive output
3	PC_1	Input		24	PG_2	Output	Record indicator drive output
4	PC_2	Input		25	PG_3	Output	Playback indicator drive output
5	PC_3	Input		26	PH_0		
6	INT	Input	Tape running pulse input	27	PH_1		
7	RES	Input	Reset input	28	PH_2	Output	Forward APSS indicator drive output
8	PD_0			29	PH_3	Output	Reverse APSS indicator drive output
9	PD_1			30	PI_0	Output	Mechanism control keys strobe output
10	PD_2			31	PI_1	Output	
11	PD_3			32	PI_2	Output	
12	PE_0	Output	Playback solenoid control output	33	PA_0	Input	Mechanism control keys strobe input
13	PE_1	Output	Pause solenoid control output	34	PA_1	Input	
14	PE_2	Output	Wind solenoid control output	35	PA_2	Input	
15	PE_3	Output	Motor control output	36	PA_3	Input	
16	PF_0	Output	Playback muting control output	37	PB_0		
17	PF_1	Output	Record muting control output	38	PB_1	Input	Cassette detector switch input
18	PF_2	Output	APSS muting control output	39	PB_2	Input	Record switch (with erase protection) input
19	PF_3	Output	Record bias control output	40	PB_3	Input	Timer start switch input
20	TEST	Input		41	V_{GG}	Power supply	0V
21	Vss	Power supply	10V	42	CL_0		Clock oscillation

Table 11–1

CIRCUITS AROUND MICROPROCESSOR

Conditions to have normal functions of the microprocessor:

1. Voltage applied to pin (21) (Vss) should be 10 ± 1V.
2. Pin (41) (V_{GG}) should have 0V.
3. Right after the power switch is switched on, 10V (high level) should be applied to pin (7) (RES). But it should eventually go down to 0V.

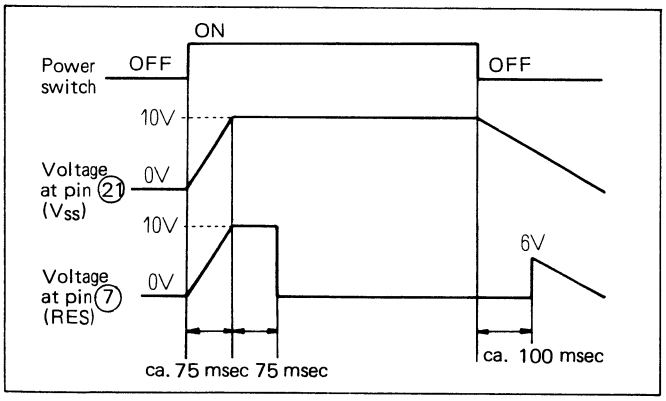


Figure 11–1

MECHANISM CONTROL KEYS

The mechanism control keys are connected in the matrix form between the strobe input terminal (PA_0, PA_1, PA_2, PA_3) and strobe output terminal (PI_0, PI_1, PI_2) of the microprocessor.

For instance, when the playback key is pushed, the strobe output signal runs back from pin (31) (PI_1) to pin (34) (PA_1), and the microprocessor detects that the playback key has been pushed down, then the playback solenoid control signal going out of pin (12) (PE_0) to force the mechanism into playback mode.

AUTOSTOP OF MECHANISM

When the tape stops running, the tape running pulse signal discontinues to be applied to pin (6) (INT) of the microprocessor about 3 seconds thereafter. Thus the microprocessor detects no more pulses coming and puts the mechanism into stop mode.

MECHANISM MODE INDICATOR

The microprocessor directly drives the indicators (LEDs) of playback, pause, record and APSS modes.

1. Playback indicator:
   Lights up when the set is in playback, record or auto spacing mode. In the case of auto spacing mode, it lights up only for 4 seconds during which an non-signal segment (space) is created on tape, and thereafter goes off with the set entering record stand by mode.
2. Pause indicator:
   Lights up when in playback stand by, record stand by or auto spacing mode.
3. Record indicator:
   Lights up when in record mode or record stand by mode.
4. APSS indicator:
   Lights up when in forward APSS or reverse APSS mode.

TIMER START

When the timer start switch (SW7) is turned on and the power switch is then turned on, the signal applied to pin (40) (PB_3) of the microprocessor becomes High level (10 V) to start the timer. If a loaded cassette has erase protection tab, the set is then put into record stand by mode, and starts recording about 4 seconds later.

If with the tab removed, the set is put into play stand by modes, and starts playing about 4 seconds later.

MICROPROCESSOR'S CONTROL FOR APSS CIRCUIT

The APSS circuit used for the RT-105H is the same as that for the other models as far as it is described from the relation with the playback head, preamplifier, APSS amplifier, time constant circuit and schmitt circuit.

Therefore here is only a description about how the microprocessor operates when the set is in APSS mode. Although the transistor Q2 always stays on when the set is in other than APSS mode, it turns off when the set enters APSS mode to detect a non-signal segment (space) from the recorded part of tape: the turn-off state lasts about 120 msec. With the transistor Q2 turned off, the mechanism control keys strobe signal goes out of pin (31) of the microprocessor, and is applied via resistor R64, diode D7 to pin (34) of the microprocessor so that the set escapes APSS mode and enters playback mode.

This mode changeover with the microprocessor is the same as with a manual operation of the playback key in APSS mode.

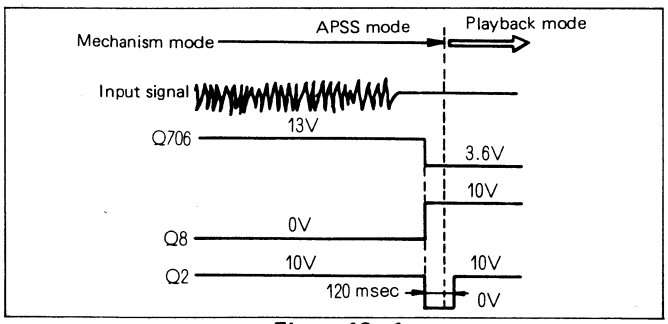


Figure 12–1

REMOTE CONTROL SIGNAL INPUT (See Table 12-1)

The functions of the RT-105H can be remote-controlled by using the remote control center (AD-105H) each optionally available in market: they are connected with the remote control socket (SO1)at the rear of the set.

On the remote control's transmitter there are the mechanism control keys corresponding to those on the RT-105H, and pushing each keys produces 4-bit signal which travels over space into the microprocessor, so that the set gets in the mode assigned by the remote control.

Function and Signal Codes

Function	Signal Codes			
	Pin ② (PC_0)	Pin ③ (PC_1)	Pin ④ (PC_2)	Pin ⑤ (PC_3)
Playback	0	0	0	1
Record	1	0	1	1
Pause	0	0	1	1
Auto spacing	0	1	1	1
Fast forward	0	1	0	1
Rewind	1	1	0	1
Forward APSS	1	1	1	1
Reverse APSS	1	1	1	0
Stop	1	0	0	1

Table 12-1

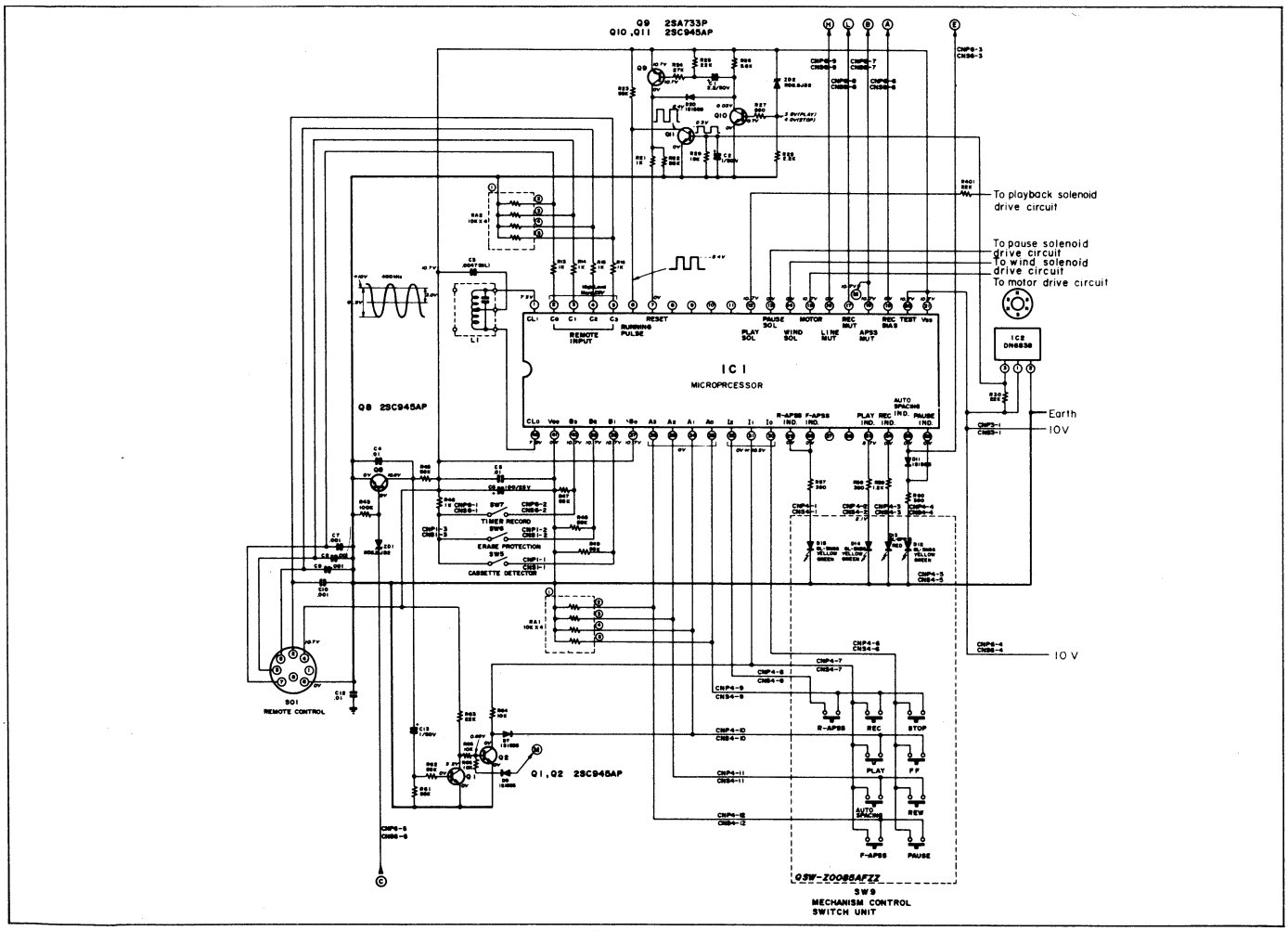


Figure 12–2

MECHANISM MODE SELECTION TABLE

Control key \ Mechanism mode	Stop	Playback	Fast forward	Rewind	Pause	Record stand by	Record	Auto spacing	Forward APSS	Reverse APSS
Stop		↓	↓	↓	↓	↓	↓	↓	↓	↓
Playback	↓		↓	↓	↓	↓ Record			↓	↓
Fast forward	↓	↓		↓	↓	↓	↓	↓	↓	↓
Rewind	↓	↓	↓		↓	↓	↓	↓	↓	↓
Pause	↓	↓					↓	↓ Record stand by		
Record	↓ Record stand by									
Auto spacing						↓	↓			
Forward APSS	↓	↓	↓	↓						↓
Reverse APSS	↓	↓	↓	↓					↓	

Table 13–1

↓ ..... Mode selection possible

..... Mode does not change.

..... Mode selection not possible (pushing the control key impossible)

If two keys are pushed at the same time, one which is switched on first is effective.

TROUBLESHOOTING

TROUBLE

The mechanism does not work at all if any of mechanism control keys is pressed.

CHECK POINTS

Does playback indicator light up when playback key is pushed?

PROBABLE CAUSES

[When motor is rotating]

Yes → Between mechanism drive P.W. board and mechanism relay P.W. board:
- CNS2 defective in contact

Between mechanism drive P.W. board and microprocessor P.W. board:
- 5-core jumper wire broken

No → (When motor is not rotating)

Is DC 10V (high level) applied to pin ⑮ of microprocessor?

Yes → At mechanism drive P.W. board:
- Q411 defective
- Q412 defective
- 5-core jumper wire broken

At mechanism relay P.W. board:
- Pin ④ of CNP2 defective in contact

At mechanism:
- Motor defective

No → Is DC 0V applied to pin ⑦ of microprocessor?

Yes → Microprocessor defective

No → If the applied voltage is 0.5V or more, the microprocessor reset circuit is defective.

Is DC 10V applied to pin ① of CNP1 on mechanism relay P.W. board when cassette detector switch (SW5) is turned on?

Yes → At microprocessor P.W. board:
- Lead to pin ㊳ of microprocessor broken

No → Is DC 10V applied to pin ③ of CNP1?

Yes →
- Cassette detector switch (SW5) defective in contact
- Mechanism control key defective in contact

No → Is lead wire from pin ③ of CNP1 to microprocessor P.W. board broken?

Yes → CNP1 defective in contact or lead broken

No → *1

*2

TROUBLE

CHECK POINTS

PROBABLE CAUSES

*1

Is DC 10V applied to pins (21) and (22) of microprocessor?

No → Pattern circuit on microprocessor P.W. board broken

Yes

Is DC 10V applied to emitter of Q501 on record/playback amplifier P.W. board?

Yes → Breakage between emitter of Q501 and pin (4) of CNS6 on microprocessor P.W. board, or pattern circuit broken

No

Is more than DC 12V applied to collector of Q501?

No → At record/playback amplifier P.W. board:
- F501 and F502 defective (open)
- Pattern circuit around collector of Q501 broken

Yes

Is DC 10V applied to base of Q501?

Yes → Q501 defective (open)

No → At record/playback amplifier P.W. board:
- ZD501 defective (shorted)
- R507 defective in contact
- C509 and C510 defective (shorted)

*2

Check if clock oscillator of microprocessor is oscillating at frequency of about 400 kHz. (This checking is made by connecting oscilloscope or synchroscope to pin (1) or (42) of microprocessor: use a probe of 10:1 as possible as you can in order to avoid the frequency decrease due to this connection.)

No → At microprocessor P.W. board
- C3 defective
- L1 defective

Yes →
- Pattern circuit around microprocessor broken
  Pins (20) and (21) : should have 10V.
  Pins (7) and (41) : should have 0V.
- Microprocessor defective

Head (subchassis) doesn't rise though mechanism mode indicator (LED) is lighting when playback, pause or record key is pushed down. (Cassette tape must be in the cassette holder.)

→ Is playback solenoid (SOL1) turned on to produce its normal tractive force when playback, pause or record key is pressed.

Yes → ● Mechanism defective

No → *3

TROUBLE

CHECK POINTS

PROBABLE CAUSES

*3

Does attract voltage (about DC 30V) from playback solenoid continue for about 50 msec?

Yes →
- Line to playback solenoid broken
- Defective contact around pin (1) of CNP2 on mechanism relay P.W. board.

No

Is voltage from pin (12) of microprocessor in "high" level (DC 10V)?

No → Microprocessor defective

Yes

Does voltage at emitter of Q405 on mechanism drive P.W. board rise up to about DC 30V?

No → At record/playback amplifier P.W. board:
- D501 defective (open)
- D503 defective (open)
- Defective contact of pin (4) of CNS3 between record/playback amplifier P.W. board and mechanism drive P.W. board

Yes → At mechanism drive P.W. board:
- Q401 defective
- Q403 defective
- Q404 defective
- Q405 defective
- C401 defective
- Or pattern circuit around these transistors broken or shorted.

Record stand by mode can't be established when record key is pushed down.

→ See that a loaded cassette has erase protection tab. Then check if wind solenoid (SOL3) turns on for a short period of time (100 msec) to provide its normal attracted, immediately after record key is pressed.

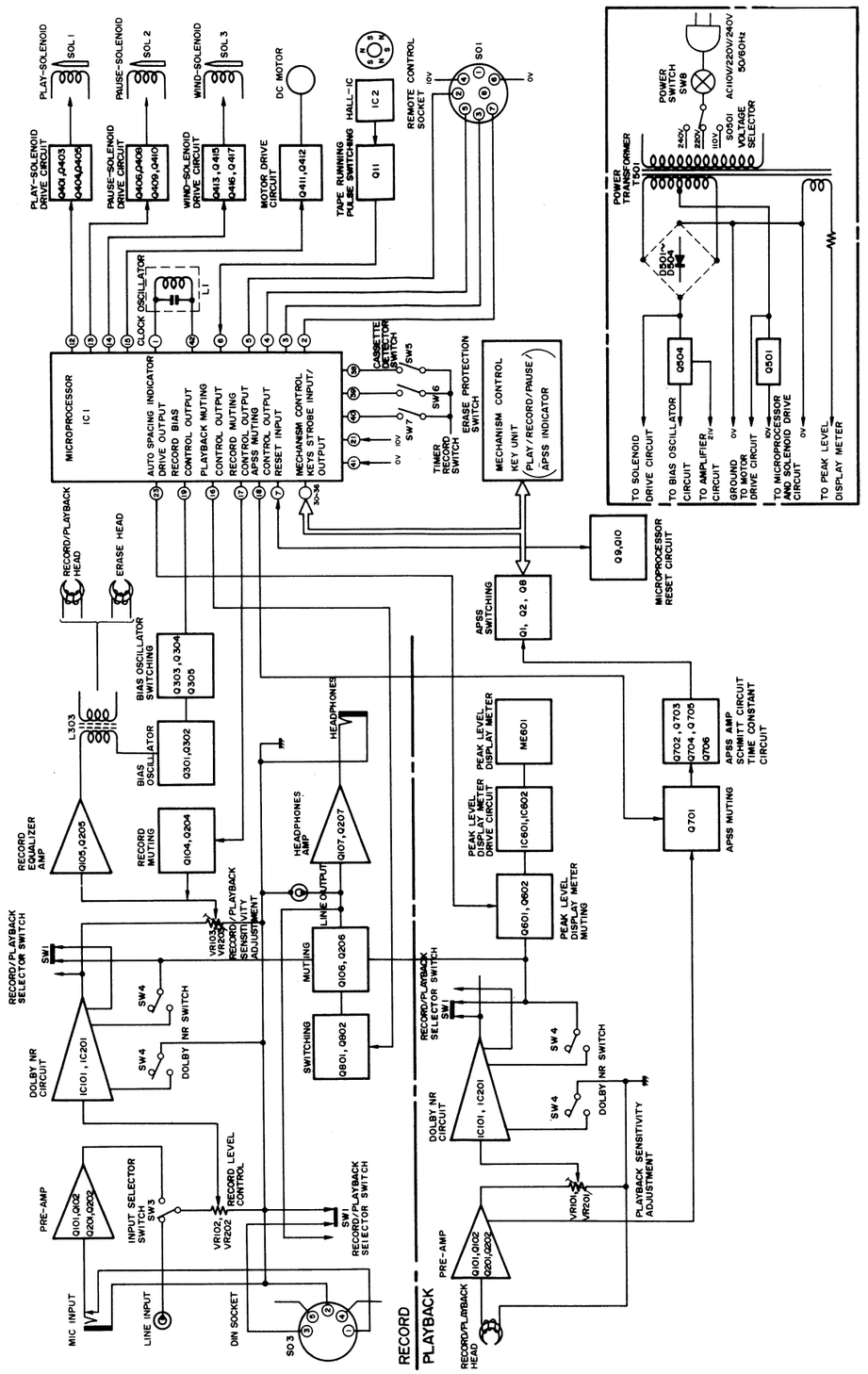
No → When pin (14) of microprocessor is kept at "high" level (DC 10V) for more than 100 msec:
- Q413, Q415, Q416 or Q417 defective
- C405 defective (open)
- Pattern circuit around these transistors broken or shorted
- Pins (2) and (5) of CNS2 defective in contact

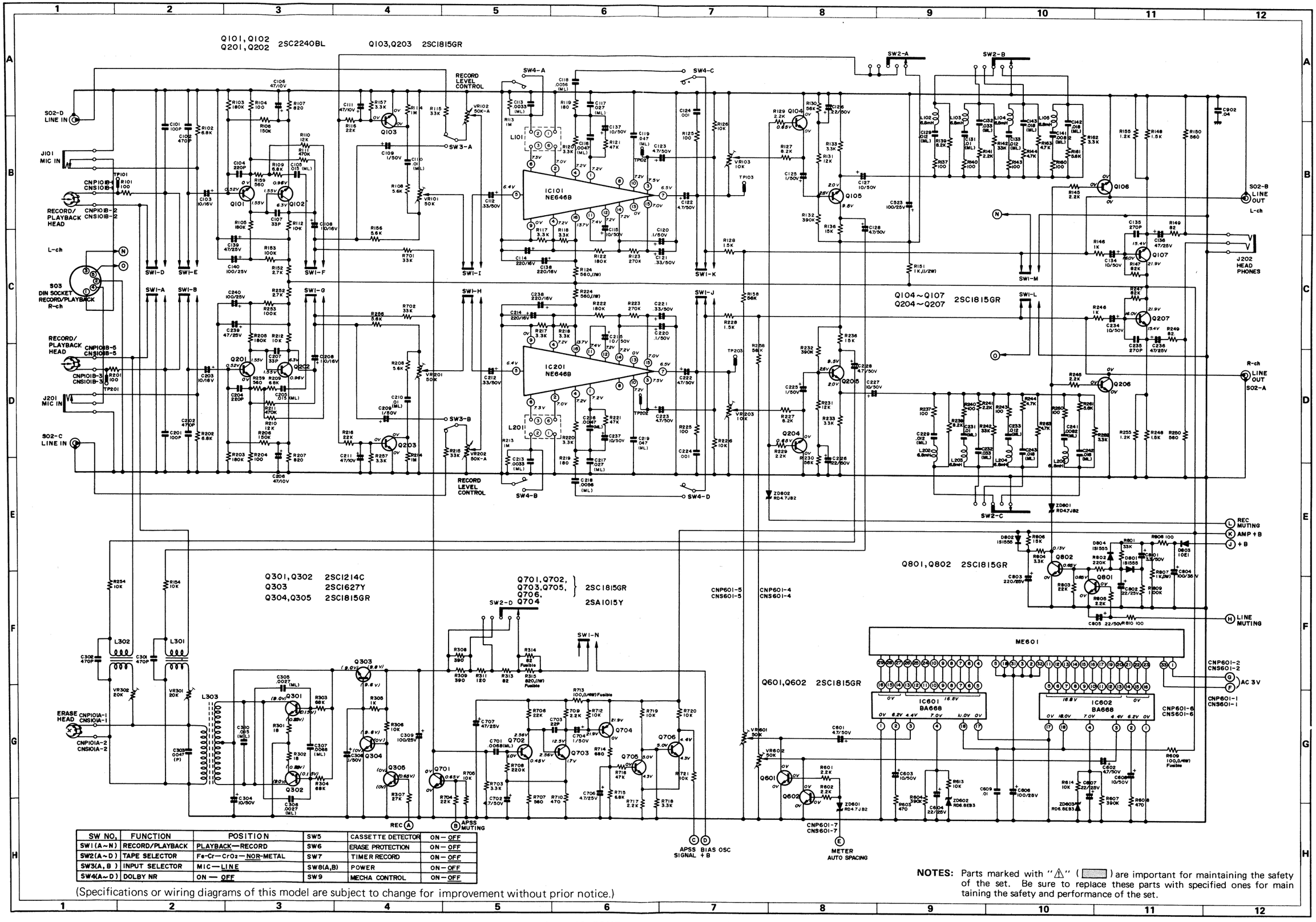
When pin (14) of microprocessor does not become "high" level:
- Defective contact of CNS6 between mechanism control key unit and microprocessor P.W. board.

Yes →
- Malfunction of record switch lever
- Pattern circuit around SW6 broken
- Pattern circuit around CNP1 broken

TROUBLE	CHECK POINTS		PROBABLE CAUSES
By-timer recording or playing is impossible.	See that timer start switch (SW7) is turned on with power energized. Then check if DC 10V is applied to pin (40) of microprocessor.	Yes	Microprocessor defective
		No	• SW7 defective in contact • Defective contact of pin (2) of CNS6 between micro-processor P.W. board and record/playback amplifier P.W. board, or pattern circuit along this line broken
Playback mode is not attained if program-to-program space (non-signal segment) is reached at the time of APSS operation.	Does voltage at collector of Q8 become 0V when program is reached at the time of APSS operation? And does it become 10V when non-signal segment is reached? (Refer to Fig. 12-1)	Yes	At microprocessor P.W. board: • Q2 defective • Q1 defective • C13 defective (opened)
		No	At record/playback amplifier P.W. board: • Q701 defective (shorted) • Q702 to Q706 defective
The set automatically stops while tape is running.	Check magnet pulley rotates and DC 10V is applied to pins (1) and (2) of Hall IC(IC2).		• Q11 defective (opened or shorted) • IC2 defective • Broken lead
Remote control is ineffective.	Check DC 10V and DC 0V are applied to pin (4) and pin (6) or remote control socket (SO1) respectively.		• Remote control's transmitter defective (The transmitted signal is not well decorded in micro-processor.)

BLOCK DIAGRAM





SW NO.	FUNCTION	POSITION	SW NO.	FUNCTION	POSITION
SW1(A~N)	RECORD/PLAYBACK	PLAYBACK—RECORD	SW5	CASSETTE DETECTOR	ON—OFF
SW2(A~D)	TAPE SELECTOR	Fe-Cr—CrO2—NOR-METAL	SW6	ERASE PROTECTION	ON—OFF
SW3(A,B)	INPUT SELECTOR	MIC—LINE	SW7	TIMER RECORD	ON—OFF
SW4(A~D)	DOLBY NR	ON—OFF	SW8(A,B)	POWER	ON—OFF
			SW9	MECHA CONTROL	ON—OFF

(Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.)

NOTES: Parts marked with "⚠" (▭) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for main taining the safety and performance of the set.

Figure 19 SCHEMATIC DIAGRAM (1/2)

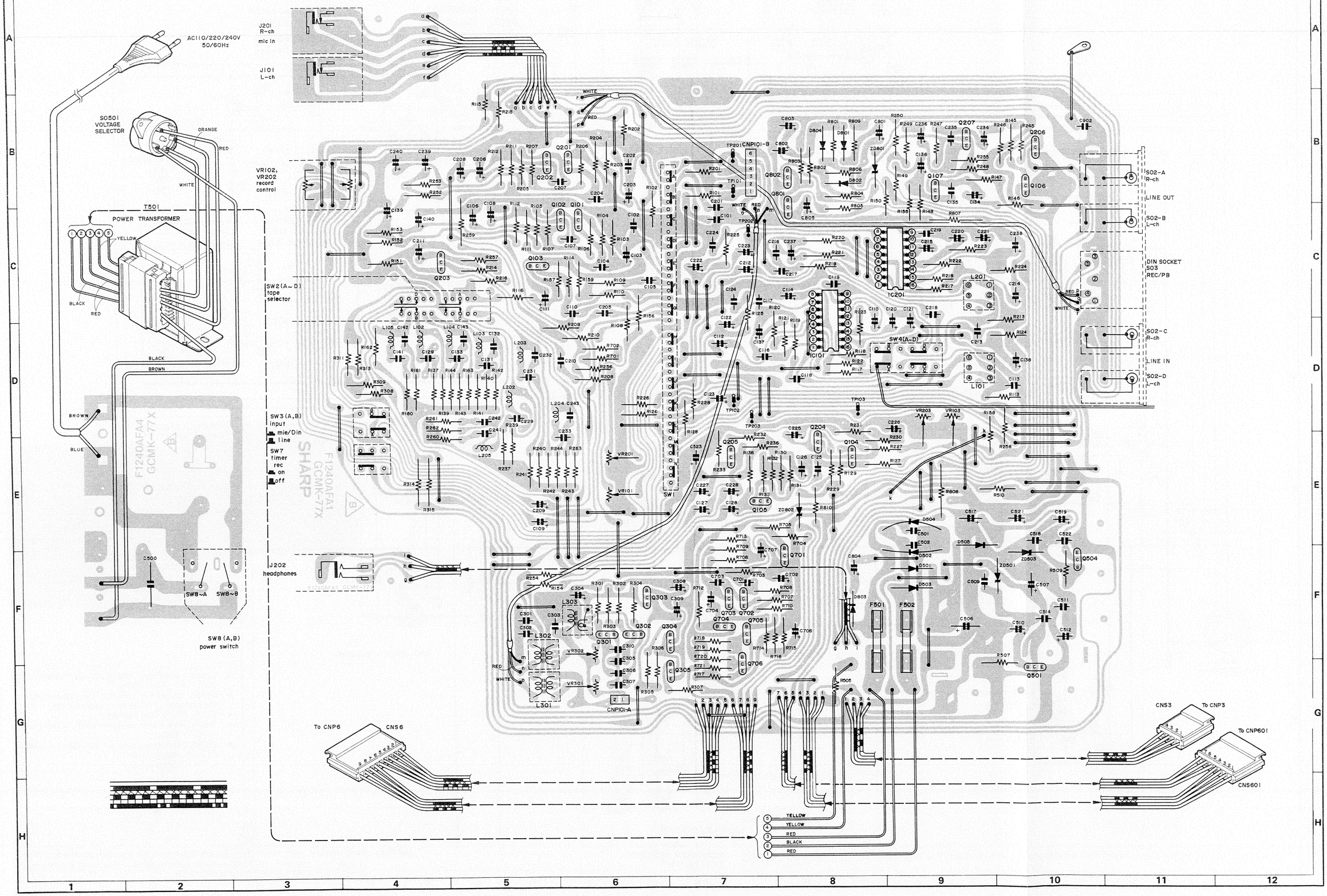
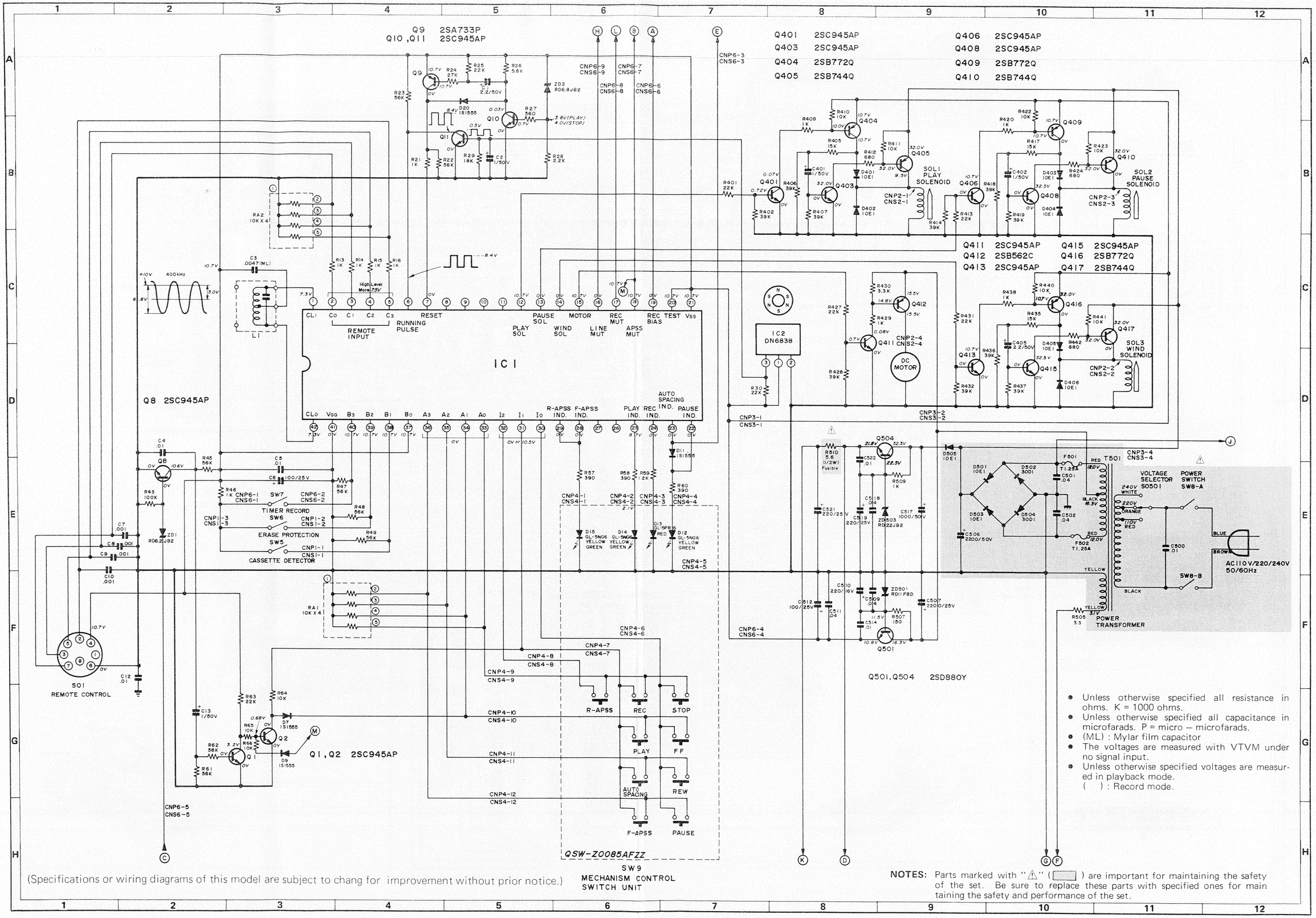


Figure 21 WIRING SIDE OF P.W. BOARD (1/3)



- Unless otherwise specified all resistance in ohms. K = 1000 ohms.
- Unless otherwise specified all capacitance in microfarads. P = micro – microfarads.
- (ML) : Mylar film capacitor
- The voltages are measured with VTVM under no signal input.
- Unless otherwise specified voltages are measured in playback mode.
  ( ) : Record mode.

NOTES: Parts marked with "⚠" ( ) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

(Specifications or wiring diagrams of this model are subject to chang for improvement without prior notice.)

Figure 23 SCHEMATIC DIAGRAM (2/2)

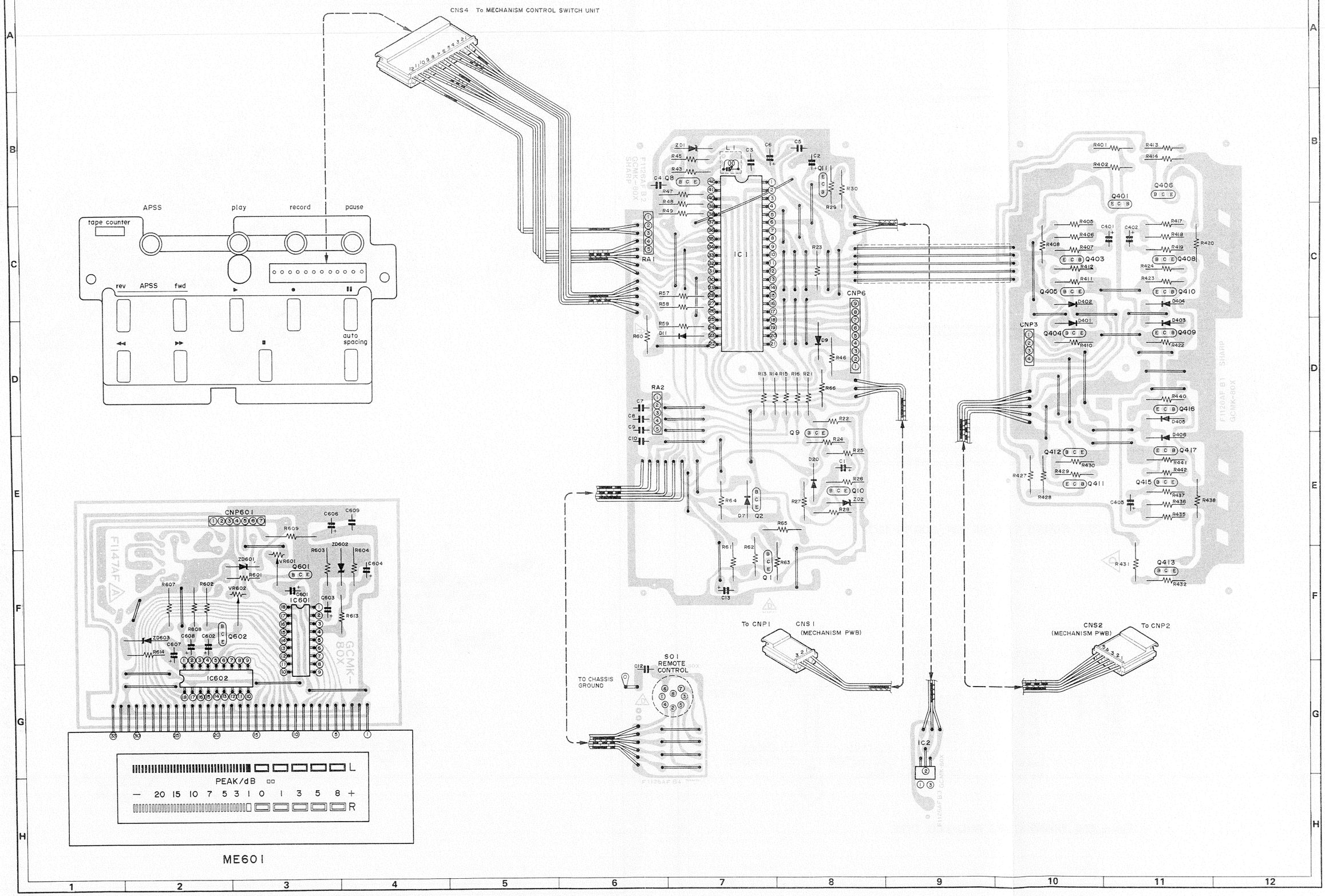


Figure 25 WIRING SIDE OF P.W. BOARD (2/3)

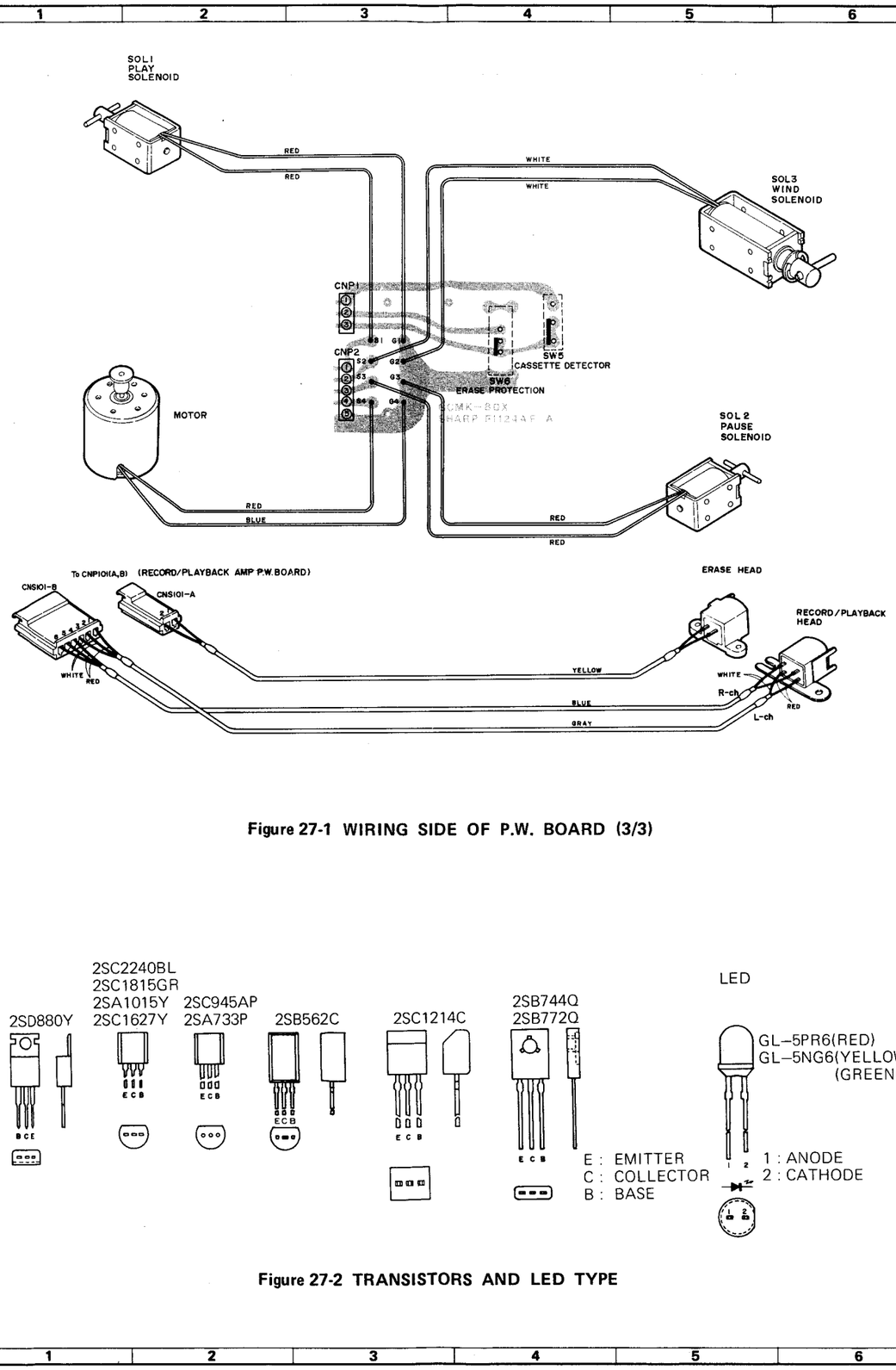


Figure 27-1 WIRING SIDE OF P.W. BOARD (3/3)

Figure 27-2 TRANSISTORS AND LED TYPE

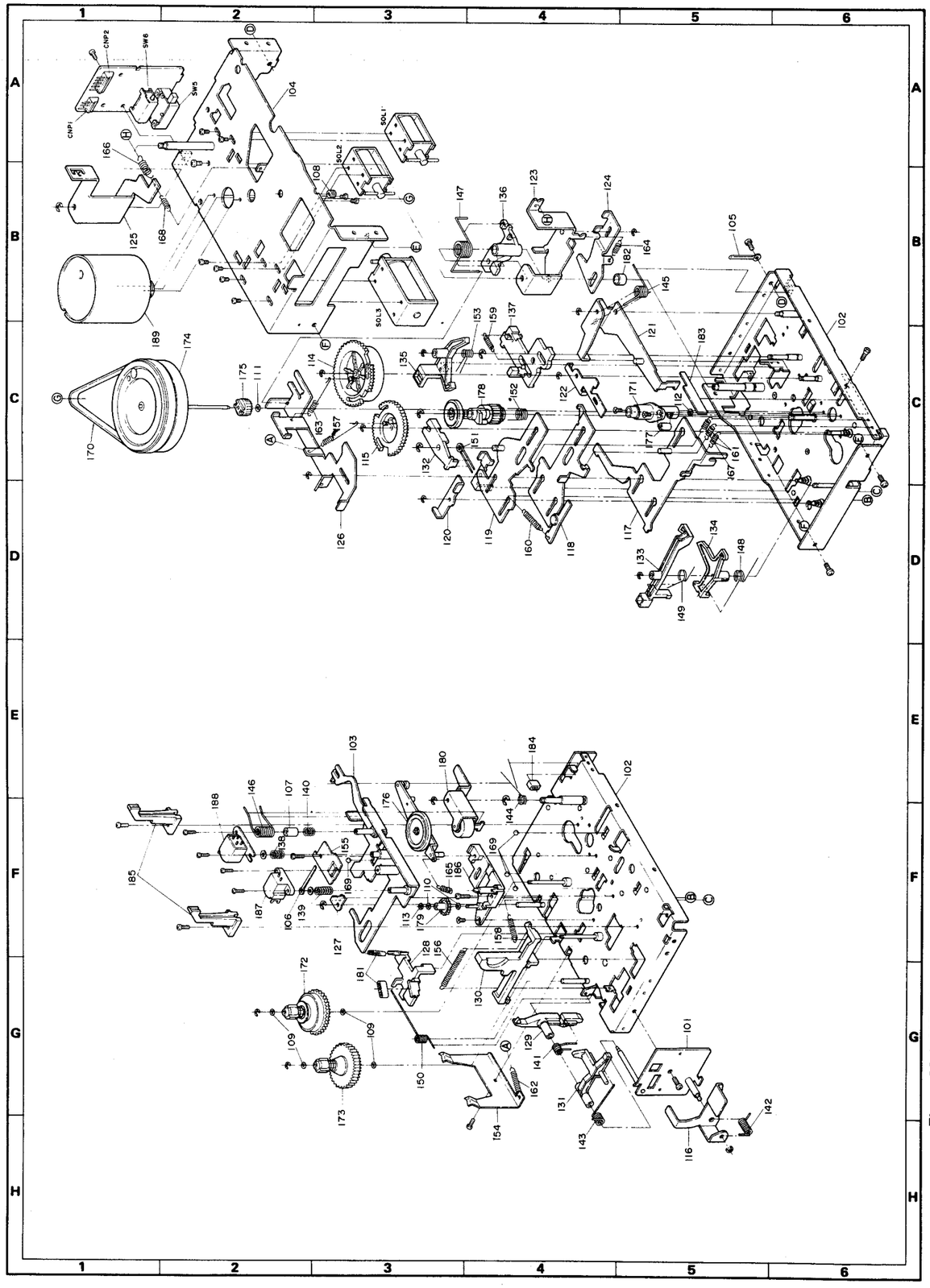


Figure 28-2 MECHANISM EXPLODED BOTTOM VIEW

Figure 28-1 MECHANISM EXPLODED TOP VIEW

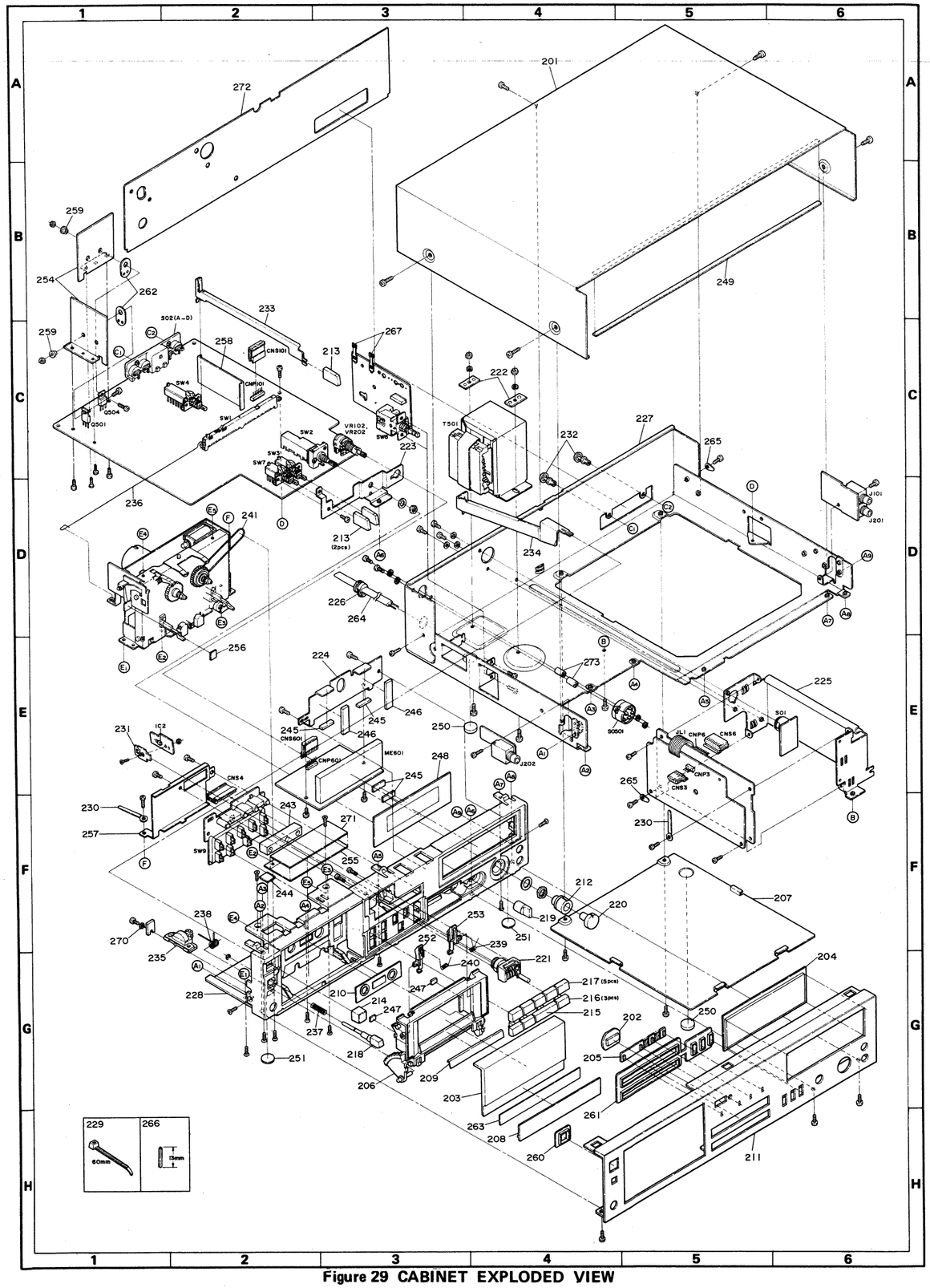
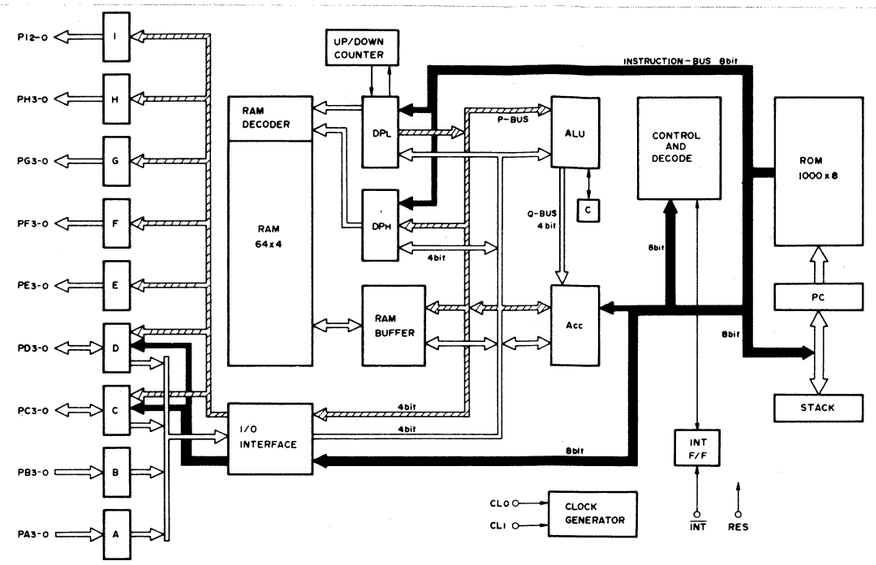


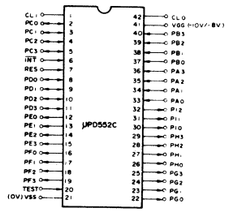
Figure 29 CABINET EXPLODED VIEW

EQUIVALENT CIRCUIT OF IC (INTEGRATED CIRCUIT)

IC1 RH-IX1200AFZZ (μPD552C-070)

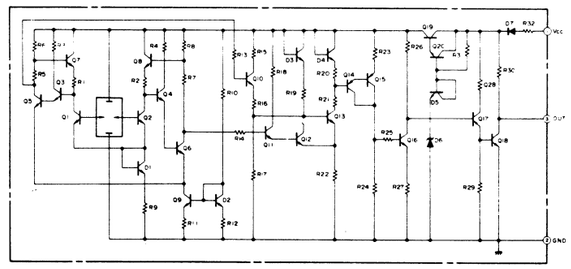


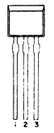
TOP VIEW



DP: Data-Pointer
ALU: Arithmetic Logic Unit
Acc: Accumulator
PC: Program Counter
C: Carry Flip-Flop

IC2 VHIDN6838//-1 (DN6838)

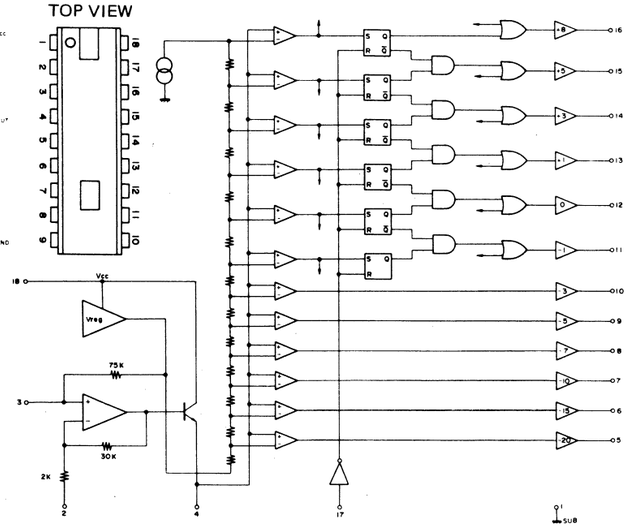




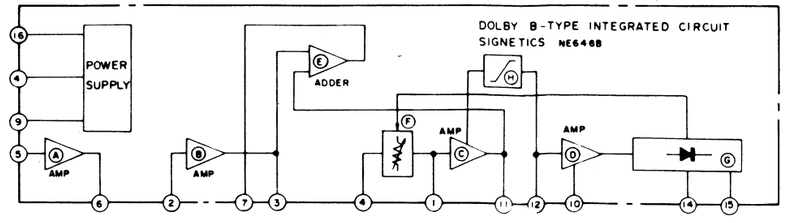
FRONT VIEW

IC601, 602 VHIBA668///1F (BA668)

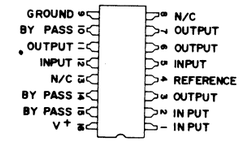
TOP VIEW



IC101, 201 VHINE646B//1F (NE646B)



TOP VIEW



REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. 4. DESCRIPTION

NOTES:
Parts marked with "⚠" (▨) are important for maintaining the safety of the set.
Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO.	PART NO.	DESCRIPTION	CODE
		INTEGRATED CIRCUITS	
IC1	RH-IX1200AFZZ	Microprocessor (μPD552C-070)	AW
IC2	VHIDN6838//-1	Hall Element (DN6838)	AG
IC101,102	VHINE646B//1F	Dolby B-Type Noise Reduction Circuit (NE646B)	AM
IC601,602	VHIBA668///1F	Peak Level Display Meter Drive (BA668)	AU
		TRANSISTORS	
Q1,2,8	VS2SC945AP/-1	APSS Switching (2SC945AP)	AB
Q9	VS2SA733-P/-1	Microprocessor Reset Circuit (2SA733P)	AC
Q10	VS2SC945AP/-1	Microprocessor Reset Circuit (2SC945AP)	AB
Q11	VS2SC945AP/-1	Tape Running Pulse Switching (2SC945AP)	AB
Q101,201, Q102,202	VS2SC2240BL-1	Pre-Amplifier (Record/Playback) (2SC2240BL)	AC
Q103,203	VS2SC1815GR-1	Switching (2SC1815GR)	AB
Q104,204	VS2SC1815GR-1	Muting (2SC1815GR)	AB
Q105,205	VS2SC1815GR-1	Record Equalizer Amplifier (2SC1815GR)	AB
Q106,206	VS2SC1815GR-1	Muting (2SC1815GR)	AB
Q107,207	VS2SC1815GR-1	Headphones Amplifier (2SC1815GR)	AB
Q301,302	VS2SC1214-C-1	Bias Oscillator (2SC1214C)	AC
Q303	VS2SC1627Y/-1	Switching (2SC1627Y)	AD
Q304,305	VS2SC1815GR-1	Switching (2SC1815GR)	AB
Q401,403	VS2SC945AP/-1	Playback Solenoid (SOL1) Drive Circuit (2SC945AP)	AB
Q404	VS2SB772-Q/-1	Playback Solenoid (SOL1) Drive Circuit (2SB772Q)	AE
Q405	VS2SB744-Q/-1	Playback Solenoid (SOL1) Drive Circuit (2SB744Q)	AE
Q406,408	VS2SC945AP/-1	Pause Solenoid (SOL2) Drive Circuit (2SC945AP)	AB
Q409	VS2SB772-Q/-1	Pause Solenoid (SOL2) Drive Circuit (2SB772Q)	AE
Q410	VS2SB744-Q/-1	Pause Solenoid (SOL2) Drive Circuit (2SB744Q)	AE
Q411	VS2SC945AP/-1	Motor Drive Circuit (2SC945AP)	AB
Q412	VS2SB562-C/-1	Motor Drive Circuit (2SB562C)	AD
Q413,415	VS2SC945AP/-1	Wind Solenoid (SOL3) Drive Circuit (2SC945AP)	AB
Q416	VS2SB772-Q/-1	Wind Solenoid (SOL3) Drive Circuit (2SB772Q)	AE
Q417	VS2SB744-Q/-1	Wind Solenoid (SOL3) Drive Circuit (2SB744Q)	AE
Q501,504	VS2SD880-Y/-1	Constant Voltage Circuit (2SD880Y)	AF
Q601,602	VS2SC1815GR-1	Muting (2SC1815GR)	AB
Q701	VS2SC1815GR-1	APSS Muting (2SC1815GR)	AB
Q702,703	VS2SC1815GR-1	APSS Amplifier (2SC1815GR)	AB
Q704	VS2SA1015Y/-1	Time Constant Circuit (2SA1015Y)	AC
Q705,706	VS2SC1815GR-1	Schmitt Circuit (2SC1815GR)	AB
Q801,802	VS2SC1815GR-1	Switching (2SC1815GR)	AB
		DIODES	
D7	VHD1S1555V/1G	Reverse Current Protector (1S1555)	AB
D9	VHD1S1555V/1G	APSS Malfunction Protector (1S1555)	AB
D11,20	VHD1S1555V/1G	Reverse Current Protector (1S1555)	AB
D12	VHPGL5NG6//-1	LED, Pause Indicator, Yellowgreen (GL5NG6)	
D13	VHPGL5PR6//-1	LED, Record Indicator, Red Red (GL5PR6)	
D14	VHPGL5NG6//-1	LED, Playback Indicator, Yellowgreen (GL5NG6)	
D15	VHPGL5NG6//-1	LED, APSS Indicator, Yellowgreen (GL5NG6)	
D401	VHD10E1////-1	Playback Solenoid Reverse Current Protector (10E1)	AC
D402	VHD10E1////-1	Playback Solenoid Surge Reverse Voltage Absorber (10E1)	AC
D403	VHD10E1////-1	Pause Solenoid Reverse Current Protector (10E1)	AC
D404	VHD10E1////-1	Pause Solenoid Surge Reverse Voltage Absorber (10E1)	AC
D405	VHD10E1////-1	Wind Solenoid Reverse Current Protector (10E1)	AC
D406	VHD10E1////-1	Wind Solenoid Surge Reverse Voltage Absorber (10E1)	AC
⚠D501	VHD10E1////-1	Power Rectifier (10E1)	AC
⚠D502	VHD30D1FAS/-1	Power Rectifier (30D1)	AD
⚠D503	VHD10E1////-1	Power Rectifier (10E1)	AC
⚠D504	VHD30D1FAS/-1	Power Rectifier (30D1)	AD
⚠D505	VHD10E1////-1	Reverse Current Protector (10E1)	AC
D801,802	VHD1S1555V/1G	Reverse Current Protector (1S1555)	AB
D803	VHD10E1////-1	Rectifier (10E1)	AC
D804	VHD1S1555V/1G	Discharge (1S1555)	AB
		ZENER DIODES	
ZD1	VHERD6R2JB2-1	APSS Signal Level Detector (RD6.2JB2)	AB
ZD2	VHERD6R8JB2-1	Microprocessor Pre-Set Voltage (RD6.8JB2)	AB
ZD501	VHERD110FBD-1	Constant Voltage (RD11FBD)	
ZD503	VHERD220JB2-1	Constant Voltage (RD22JB2)	AB
ZD601	VHERD4R7JB2-1	Muting (RD4,7JB2)	AB
ZD602,603	VHERD6R8EB3-1	Discharge Constant (RD6.8EB3)	AB
ZD801,802	VHERD4R7JB2-1	Muting (RD4,7JB2)	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
		COILS	
L1	RCILB0509AFZZ	Microprocessor Clock Oscillator, 400kHz	AD
L101,201	RCILL0071AFZZ	Dolby Filter (Low pass Filter), 19kHz/105kHz Trap	AG
L102,202, L103,203, L104,204, L105,205,	RCILZ0086AFZZ	6.8mH, Record Equalizer	AC
L301,302	RCILB0521AFZZ	Bias Step-up	AD
L303	RCILB0520AFZZ	Bias Oscillator	AE
		TRANSFORMER	
⚠T501	RTRNP0761AFZZ	Power	
		CONTROLS	
VR101,201	RVR-M0328AFZZ	50K ohm (B), Playback Sensitivity Adjust	AB
VR102,202	RVR-A0154AFZZ	50K ohm (A), Record Level Control	AM
VR103,203	RVR-M0325AFZZ	10K ohm (B), Record/Playback Sensitivity Adjust	AB
VR301,302	RVR-M0326AFZZ	20K ohm (B), Bias Current Adjust	AB
VR601,602	RVR-M0328AFZZ	50K ohm (B), Peak Level Display Meter Sensitivity Adjust	AB
		ELECTROLYTIC CAPACITORS	
C1	VCEALU1HC225K	2.2MFD, 50V, ±10%	AB
C2	RC-EZV105AF1H	1MFD, 50V, ±20%	AB
C6	RC-EZV107AF1E	100MFD, 25V, ±20%	AC
C13	VCEALV1HC105K	1MFD, 50V, ±10%	AB
C103,203	VCEALA1CC106K	10MFD, 16V, ±10%	AB
C106,206	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C108,208	VCEALA1CC106K	10MFD, 16V, ±10%	AB
C109,209	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C111,211	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C112,212	VCEALA1HC334K	.33MFD, 50V, ±10%	AB
C114,214	RC-EZV227AF1C	220MFD, 16V, ±20%	AB
C115,215	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C120,220	VCEALA1HW104K	.1MFD, 50V, ±10%	AB
C121,221	VCEALA1HW334K	.33MFD, 50V, ±10%	AB
C122,222	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C123	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C223	RC-EZV475AF1H	4.7MFD, 50V, ±20%	AB
C125,225	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C126,226	VCEALA1HW224K	.22MFD, 50V, ±10%	AB
C127,227	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C128,228	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C134,234	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C136,236	RC-EZA476AF1E	47MFD, 25V, ±20%	AB
C137,237	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C138,238	RC-EZV227AF1C	220MFD, 16V, ±20%	AB
C139,239	RC-EZA476AF1E	47MFD, 25V, ±20%	AB
C140,240	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C304	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C308	VCEALA1HW104K	.1MFD, 50V, ±10%	AB
C309	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C401,402	VCEALV1HC105K	1MFD, 50V, ±10%	AB
C405	VCEALV1HC225K	2.2MFD, 50V, ±10%	AB
⚠C506	RC-EZT228AF1H	2200MFD, 50V, +30—10%	AL
C507	RC-EZV228AF1E	2200MFD, 25V, ±20%	AG
C510	RC-EZV227AF1C	220MFD, 16V, ±20%	AB
C512	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C517	RC-EZS108AF1H	1000MFD, 50V, ±20%	AG
C519	RC-EZV227AF1E	220MFD, 25V, ±20%	AC
C521	RC-EZV227AF1E	220MFD, 25V ±20%	AC
C523	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C601,602	RC-EZV475AF1H	4.7MFD, 50V, ±20%	AB
C603	RC-EZV106AF1H	10MFD, 50V, ±20%	AB
C604	RC-EZV226AF1E	22MFD, 25V, ±20%	AB
C606	RC-EZV107AF1E	100MFD, 25V, ±20%	AC
C607	RC-EZV226AF1E	22MFD, 25V, ±20%	AB
C608	RC-EZV106AF1H	10MFD, 50V, ±20%	AB
C702	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C704	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C706	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C707	RC-EZA476AF1E	47MFD, 25V, ±20%	AB
C801	RC-EZA335AF1H	3.3MFD, 50V, ±20%	AB
C802	RC-EZV226AF1E	22MFD, 25V, ±20%	AB
C803	RC-EZV227AF1E	220MFD, 25V, ±20%	AC
C804	RC-EZV107AF1V	100MFD, 35V, ±20%	AC
C805	VCEALA1HW224K	.22MFD, 50V, ±10%	AB
		CAPACITORS	
C3	VCQYKV1HM472M	.0047MFD, 50V, ±20%, Mylar	AA
C4,5	VCKZPV1HF103Z	.01MFD, 50V, +80—20% Ceramic	AA
C7,8, C9,10	VCKYPV1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C12	VCKZPV1HF103Z	.01MFD, 50V, +80—20%, Ceramic	AA
C101,201	VCCSPA1HL101J	100PF, 50V, ±5%, Ceramic	AA
C102,202	VCCSPA1HL471J	470PF, 50V, ±5%, Ceramic	AA
C104,204	VCCSPA1HL221J	220PF, 50V, ±5%, Ceramic	AA
C105,205	VCQYKA1HM153J	.015MFD, 50V, ±5%, Mylar	AB
C107,207	VCCSPA1HL330J	33PF, 50V, ±5%, Ceramic	AA
C110,210	VCQYKA1HM103J	.01MFD, 50V, ±5%, Mylar	AB
C113,213	VCQYKA1HM332K	.0033MFD, 50V, ±10%, Mylar	AA
C116,216	VCQYKA1HM472J	.0047MFD, 50V, ±5%, Mylar	AB
C117	VCQYKA1HM273J	.027MFD, 50V, ±5%, Mylar	AB
C217	VCQYKV1HM273J	.027MFD, 50V, ±5%, Mylar	AB
C118,218	VCQYKA1HM562J	.0056MFD, 50V, ±5%, Mylar	AB
C119,219	VCQYKA1HM473J	.047MFD, 50V, ±5%, Mylar	AB
C124,224	VCKZPA1HF102Z	.001MFD, 50V, +80—20%, Ceramic	AA
C129,229	VCQYKA1HM123J	.012MFD, 50V, ±5%, Mylar	AB
C131,231	VCQYKA1HM103J	.01MFD, 50V, ±5%, Mylar	AB
C132,232	VCQYKA1HM333J	.033MFD, 50V, ±5%, Mylar	AB
C133,233	VCQYKA1HM123K	.012MFD, 50V, ±10%, Mylar	AB
C135,235	VCCSPA1HL271J	270PF, 50V, ±5%, Ceramic	AA
C141,241	VCQYKA1HM822J	.0082MFD, 50V, ±5%, Mylar	AB
C142,242, C143,243	VCQYKA1HM183K	.018MFD, 50V, ±10%, Mylar	AA
C301,302	VCCSPA1HL471J	470PF, 50V, ±5%, Ceramic	AA
C303	VCQPKQ2AA472J	.0047MFD, 100V, ±5%, Polypropylene	AB
C305,306	VCQYKA1HM272K	.0027MFD, 50V, ±10%, Mylar	AA
C307	VCQYKA1HM682K	.0068MFD, 50V, ±10%, Mylar	AA
C310	VCQYKA1HM153J	.015MFD, 50V, ±5%, Mylar	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
⚠C500	RC-HZ069CAFZZ	.01MFD, 250V, ±20% Ceramic	AG
⚠C501,502	VCKZPA1HF403Z	.04MFD, 50V, +80–20%, Ceramic	AA
C509	VCKZPA1HF403Z	.04MFD, 50V, +80–20% Ceramic	AA
C511	VCKZPA1HF403Z	.04MFD, 50V, +80–20%, Ceramic	AA
C514	VCKZPA1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C518	VCKZPA1HF403Z	.04MFD, 50V, +80–20%, Ceramic	AA
C522	VCKZPA1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C609	VCKZPV1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C701	VCQYKA1HM682K	.0068MFD, 50V, ±10%, Mylar	AA
C703	VCCSPA1HL220J	22PF, 50V, ±5%, Ceramic	AA
C902	VCKZPA1HF403Z	.04MFD, 50V, +80–20%, Ceramic	AA

RESISTORS

(Unless otherwise specified resistors are ¼W, ±5%, Carbon type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
R13,14, R15,16, R21	VRD-ST2EE102J	1K ohm	
R22,23	VRD-ST2EE563J	56K ohm	
R24	VRD-ST2EE273J	27K ohm	
R25	VRD-ST2EE223J	22K ohm	
R26	VRD-ST2EE562J	5.6K ohm	
R27	VRD-ST2EE561J	560 ohm	
R28	VRD-ST2EE222J	2.2K ohm	
R29	VRD-ST2EE183J	18K ohm	
R30	VRD-ST2EE223J	22K ohm	
R43	VRD-ST2EE104J	100K ohm	
R45	VRD-ST2EE563J	56K ohm	
R46	VRD-ST2EE102J	1K ohm	
R47,48,49	VRD-ST2EE563J	56K ohm	
R57,58	VRD-ST2EE391J	390 ohm	
R59	VRD-ST2EE122J	1.2K ohm	
R60	VRD-ST2EE391J	390 ohm	
R61,62	VRD-ST2EE563J	56K ohm	
R63	VRD-ST2EE223J	22K ohm	
R64,65,66	VRD-ST2EE103J	10K ohm	
R101,201	VRD-ST2EE101J	100 ohm	AA
R102,202	VRD-ST2EE682J	6.8K ohm	
R103,203	VRD-ST2EE184J	180K ohm	
R104,204	VRD-ST2EE101J	100 ohm	
R105,205	VRD-ST2EE184J	180K ohm	
R106,206	VRD-ST2EE154J	150K ohm	
R107,207	VRD-ST2EE821J	820 ohm	
R108,208	VRD-ST2EE562J	5.6K ohm	
R109,209	VRD-ST2EE682J	6.8K ohm	
R110,210	VRD-ST2EE123J	12K ohm	
R111,211	VRD-ST2EE474J	470K ohm	
R112,212	VRD-ST2EE103J	10K ohm	
R113,213	VRD-ST2EE105J	1Meg ohm	
R114,214	VRD-ST2EE105J	1Meg ohm	
R115,215	VRD-ST2EE333J	33K ohm	
R116,216	VRD-ST2EE223J	22K ohm	
R117,217 R118,218	VRD-ST2EE332J	3.3K ohm	
R119,219	VRD-ST2EE181J	180 ohm	
R120,220	VRD-ST2EE332J	3.3K ohm	
R121,221	VRD-ST2EE473J	47K ohm	
R122,222	VRD-ST2EE184J	180K ohm	
R123,223	VRD-ST2EE274J	270K ohm	
R124,224	VRS-PT3AB561K	560 ohm, 1W, ±10%, Metal Oxide Film	
R125,225	VRD-ST2EE101J	100 ohm	
R126,226	VRD-ST2EE103J	10K ohm	
R127,227	VRD-ST2EE822J	8.2K ohm	
R128,228	VRD-ST2EE152J	1.5K ohm	
R129,229	VRD-ST2EE222J	2.2K ohm	
R130,230	VRD-ST2EE563J	56K ohm	
R131,231	VRD-ST2EE123J	12K ohm	
R132,232	VRD-ST2EE394J	390K ohm	
R133,233	VRD-ST2EE332J	3.3K ohm	
R136,236	VRD-ST2EE153J	15K ohm	
R137,237	VRD-ST2EE101J	100 ohm	
R139,239	VRD-ST2EE822J	8.2K ohm	
R140,240	VRD-ST2EE101J	100 ohm	
R141,241	VRD-ST2EE222J	2.2K ohm	
R142,242	VRD-ST2EE333J	33K ohm	
R143,243	VRD-ST2EE101J	100 ohm	
R144,244	VRD-ST2EE472J	4.7K ohm	
R145,245	VRD-ST2EE222J	2.2K ohm	
R146,246	VRD-ST2EE102J	1K ohm	
R147,247	VRD-ST2EE823J	82K ohm	
R148,248	VRD-ST2EE152J	1.5K ohm	
R149,249	VRD-ST2EE820J	82 ohm	
R150,250	VRD-ST2EE561J	560 ohm	
R151	VRD-ST2HD102J	1K ohm, ½W, ±5%, Carbon	AA
R152,252	VRD-ST2EE272J	2.7K ohm	
R153,253	VRD-ST2EE104J	100K ohm	
R154,254	VRD-ST2EE103J	10K ohm	
R155,255	VRD-ST2EE122J	1.2K ohm	
R156,256	VRD-ST2EE562J	5.6K ohm	
R157,257	VRD-ST2EE332J	3.3K ohm	
R158,258	VRD-ST2EE563J	56K ohm	
R159,259	VRD-ST2EE561J	560 ohm	
R160,260	VRD-ST2EE101J	100 ohm	
R161,261	VRD-ST2EE562J	5.6K ohm	
R162,262	VRD-ST2EE332J	3.3K ohm	
R163,263	VRD-ST2EE472J	4.7K ohm	
R301,302	VRD-ST2EE180J	18 ohm	
R303,304	VRD-ST2EE683J	68K ohm	
R305	VRD-ST2EE102J	1K ohm	
R306	VRD-ST2EE103J	10K ohm	
R307	VRD-ST2EE273J	27K ohm	
R308,309	VRD-ST2EE391J	390 ohm	
R311	VRD-ST2EE121J	120 ohm	
R313	VRD-ST2EE820J	82 ohm	
R314	RR-XZ1045AFZZ	82 ohm, 1/4W, ±5%, Fusible	
R315	VRS-PT3AB821K	820 ohm, 1W, ±10%, Metal Oxide Film	
R401	VRD-ST2EE223J	22K ohm	
R402	VRD-ST2EE393J	39K ohm	
R405	VRD-ST2EE153J	15K ohm	
R406,407	VRD-ST2EE393J	39K ohm	
R408	VRD-ST2EE102J	1K ohm	
R410,411	VRD-ST2EE103J	10K ohm	
R412	VRD-ST2EE681J	680 ohm	
R413	VRD-ST2EE223J	22K ohm	
R414	VRD-ST2EE393J	39K ohm	
R417	VRD-ST2EE153J	15K ohm	
R418,419	VRD-ST2EE393J	39K ohm	
R420	VRD-ST2EE102J	1K ohm	
R422,423	VRD-ST2EE103J	10K ohm	
R424	VRD-ST2EE681J	680 ohm	
R427	VRD-ST2EE223J	22K ohm	
R428	VRD-ST2EE393J	39K ohm	
R429	VRD-ST2EE102J	1K ohm	
R430	VRD-ST2EE332J	3.3K ohm	
R431	VRD-ST2EE223J	22K ohm	
R432	VRD-ST2EE393J	39K ohm	
R435	VRD-ST2EE153J	15K ohm	AA
R436,437	VRD-ST2EE393J	39K ohm	
R438	VRD-ST2EE102J	1K ohm	
R440,441	VRD-ST2EE103J	10K ohm	
R442	VRD-ST2EE681J	680 ohm	
R505	VRD-ST2EE3R3J	3.3 ohm	
R507	VRD-ST2EE151J	150 ohm	
R509	VRD-ST2EE102J	1K ohm	
⚠R510	VRG-ST2HA5R6J	5.6 ohm, ½W, ±5%, Fusible	AB
R601,602	VRD-ST2EE222J	2.2K ohm	
R603	VRD-ST2EE471J	470 ohm	AA
R604,607	VRD-ST2EE394J	390K ohm	
R608	VRD-ST2EE471J	470 ohm	
R609	VRG-ST2EA101J	100 ohm, ¼W, ±5%, Fusible	AB
R613,614	VRD-ST2EE103J	10K ohm	
R701,702	VRD-ST2EE333J	33K ohm	
R703	VRD-ST2EE332J	3.3K ohm	
R704	VRD-ST2EE223J	22K ohm	
R705	VRD-ST2EE103J	10K ohm	
R706	VRD-ST2EE223J	22K ohm	AA
R707	VRD-ST2EE561J	560 ohm	
R708	VRD-ST2EE224J	220K ohm	
R709	VRD-ST2EE222J	2.2K ohm	
R710	VRD-ST2EE471J	470 ohm	
R712	VRD-ST2EE103J	10K ohm	
R713	VRG-ST2EA101J	100 ohm, ¼W, ±5%, Fusible	AB
R714	VRD-ST2EE681J	680 ohm	
R715	VRD-ST2EE682J	6.8K ohm	
R716	VRD-ST2EE473J	47K ohm	
R717	VRD-ST2EE222J	2.2K ohm	
R718	VRD-ST2EE332J	3.3K ohm	
R719,720, R721	VRD-ST2EE103J	10K ohm	
R801	VRD-ST2EE333J	33K ohm	
R802	VRD-ST2EE224J	220K ohm	AA
R803	VRD-ST2EE223J	22K ohm	
R804	VRD-ST2EE332J	3.3K ohm	
R805	VRD-ST2EE222J	2.2K ohm	
R806	VRD-ST2EE153J	15K ohm	
R807	VRS-PT3AB102K	1K ohm, 1W, ±10%, Metal Oxide Film	
R808	VRD-ST2EE101J	100 ohm	
R809	VRD-ST2EE104J	100K ohm	
R810	VRD-ST2EE101J	100 ohm	

PACKAGED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
RA1,2	RMPTC0007AFZZ	10K ohm x 4	AC

MECHANICAL PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
101	LANGA0080AFZZ	Bracket, Eject Lever/Cassette Detector Lever/Erase Protection Lever	AD
102	LCHSM0350AFZZ	Mechanism Chassis	
103	LCHSS0157AFZZ	Sub Chassis	
104	LCHSZ0077AFZZ	Back Chassis	AH
105	LHLDW3056AFZZ	Wire Holder	AA
106	LHLDW3061AFZZ	Wire Holder	AA
107	LSLVM0093AFFW	Sleeve, Record/Playback Head Retaining	AB
108	LX-BZ0214AFZZ	Screw, Flywheel Thrust Adjust	AB
109	LX-WZ5018AGZZ	Washer, 2.1mm Dia. x 4mm Dia. x 0.25mm	AA
110	LX-WZ5020AGZZ	Washer, 1.7mm Dia. x 3.2mm Dia. x 0.25mm	AA
111	LX-WZ5037AGZZ	Washer, 2.6mm Dia. x 4.7mm Dia. x 0.25mm	AA
112	LX-WZ9051AFZZ	Washer, Oil Cut	AA
113	LX-WZ9063AFZZ	Washer, Stop 1.2mm Dia.	AA
114	MCAMP0052AFZZ	Cam, Play	AC
115	MCAMP0053AFZZ	Cam, Pause	AD
116	MLEVF1069AFZZ	Lever, Eject	AC
117	MLEVF1076AFZZ	Lever, Pause	AD
118	MLEVF1077AFZZ	Lever, Fast-Forward	AD
119	MLEVF1078AFZZ	Lever, Rewind	AD
120	MLEVF1079AFZZ	Lever, Cam Lock Interlock	AB
121	MLEVF1080AFZZ	Lever, Play	AB
122	MLEVF1081AFZZ	Lever, APSS	AB
123	MLEVF1082AFZZ	Lever, Record	AE
124	MLEVF1083AFZZ	Lever, Record	AB
125	MLEVF1084AFZZ	Lever, Record/Playback	AC
126	MLEVF1085AFZZ	Lever, Solenoid Interlock	AC
127	MLEVF1091AFZZ	Lever, Fast-Forward Assistant	AB
128	MLEVP0115AFZZ	Lever, Brake	AC
129	MLEVP0196AFZZ	Lever, Erase Protection	AB
130	MLEVP0198AFZZ	Lever, Cassette Holder Lock	AC
131	MLEVP0201AFZZ	Lever, Cassette Detection	AB
132	MLEVP0206AFZZ	Lever, Fast-Forward/Rewind Shift	AB
133	MLEVP0207AFZZ	Lever, Pause Cam Release	AB
134	MLEVP0208AFZZ	Lever, Pause Cam Lock	AB
135	MLEVP0209AFZZ	Lever, Play Cam Lock	AB
136	MLEVP0210AFZZ	Lever, Record Switch	AB
137	MLEVP0211AFZZ	Lever, Eject Obstruction	AB
138	MSPRC0031AGMN	Spring, Head Azimuth	AA
139	MSPRC0156AFFJ	Spring, Erase Head Retaining	AB
140	MSPRC0218AFFJ	Spring, Record/Playback Head Retaining	AA
141	MSPRD0276AFFJ	Spring, Erase Protection Lever	AA
142	MSPRD0278AFFJ	Spring, Eject Lever	AA
143	MSPRD0284AFFJ	Spring, Cassette Detection Lever	AA
144	MSPRD0291AFFJ	Spring, Sub Chassis Pressure	AA
145	MSPRD0292AFFJ	Spring, Play Lever	AA
146	MSPRD0293AFFJ	Spring, Pressure Roller	AB
147	MSPRD0294AFFJ	Spring, Record Switch Lever	AA
148	MSPRD0295AFFJ	Spring, Pause Cam Lock Lever	AA
149	MSPRD0296AFFJ	Spring, Pause Cam Release Lever	AA
150	MSPRD0297AFFJ	Spring, Brake Lever	AA
151	MSPRD0298AFFJ	Spring, Fast-Forward/Rewind Shift Lever	AA
152	MSPRD0299AFFJ	Spring, Fast-Forward/Rewind Roller	AA
153	MSPRD0300AFFJ	Spring, Play Cam Lock Lever	AA
154	MSPRD0240AFFW	Plate Spring, Cassette Press	AC
155	MSPRD0244AFFW	Plate Spring, Sub Chassis Press	AC
156	MSPRT0679AFFJ	Spring, Cassette Holder Lock Lever	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
157	MSPRT0687AFFJ	Spring, Pause Cam	AB
158	MSPRT0688AFFJ	Spring, Rewind Lever	AA
159	MSPRT0689AFFJ	Spring, Eject Obstruction Lever	AA
160	MSPRT0690AFFJ	Spring, Fast-Forward Lever	AA
161	MSPRT0691AFFJ	Spring, Fast-Forward Lever/ Pause Lever	AA
162	MSPRT0692AFFJ	Spring, Solenoid Interlock Lever	AA
163	MSPRT0693AFFJ	Spring, Play Cam	AB
164	MSPRT0694AFFJ	Spring, Record Lever	AA
165	MSPRT0695AFFJ	Spring, Take-up Idler Press	AA
166	MSPRT0696AFFJ	Spring, Record Lever	AA
167	MSPRT0719AFFJ	Spring, Rewind Lever	AA
168	MSPRT0723AFFJ	Spring, Record/Playback Lever	AA
169	NBALS0004AGFJ	Steel Ball, 3mm Dia.	AA
170	NBLTH0074AFZZ	Belt, Mechanism Drive	AC
171	NBRGC0070AFZZ	Bearing, Capstan	AG
172	NDAIR0148AFSA	Turntable, Take-up	AF
173	NDAIR0152AFSA	Turntable, Supply	AE
174	NFLYC0088AFZZ	Flywheel	AN
175	NGERH0063AFZZ	Gear, Drive	AB
176	NIDR-0072AFZZ	Idler, Take-up	AF
177	NPLYR0050AFZZ	Pulley, Take-up, Rubber	AB
178	NROLV0016AFZZ	Roller, Fast-Forward/Rewind	AH
179	NROLX0015AFZZ	Gear, Rewind	AB
180	NROLY0038AFZZ	Pinch Roller Assembly	AE
181	PCUSG0026AG00	Rubber, Turntable Brake Lever	AA
182	PCUSG0088AF00	Rubber, Solenoid Interlock Lever	AB
183	PCUSG0119AG00	Rubber, Pause Lever/Fast-Forward Lever/Rewind Lever	AA
184	PCUSG0120AF00	Rubber, Noise Absorb	AA
185	PGIDM0082AFZZ	Guide, Cassette Tape	AB
186	PGIDM0088AFZZ	Guide, Cassette	AB
187	RHEDA0082AFZZ	Erase Head	AK
188	RHEDH0093AFZZ	Record/Playback Head	AT
189	RMOTV0089AFZZ	Motor (DC)	AV

MISCELLANEOUS

201	GCAB-3105AFSA	Cabinet	AT
202	GCOVA1069AFSA	Cover, Tape Counter (Transparent)	AC
203	GCOVA1208AFSA	Window, Cassette Compartment (Transparent)	AM
204	GCOVA1229AFSA	Window, Peak Level Display Meter (Transparent)	AE
205	GCOVA1218AFSA	Cover, Mechanism Mode Indicator	AD
206	GFTAC1132AFSB	Cassette Holder	AH
207	GITAU0013AFZZ	Lid, Bottom	AG
208	HDECB0140AFSA	Decoration Plate, Cassette Compartment	AH
209	HDECB0141AFSA	Dial Scale, Cassette Compartment	AC
210	HDECB0143AFSA	Mirror Plate, Cassette Compartment	AD
211	HPNLC3481AFSA	Front Panel	
212	JKNBK0208AFSA	Knob, Record Level Control, Right Channel	AH
213	JKNBM0354AFSA	Knob, Timer Record/Input Selector Switch/Dolby NR Switch	AE
214	JKNBM0355AFSA	Knob, Power Switch	AE
215	JKNBM0360AFSA	Key, Stop	AE
216	JKNBM0361AFSA	Key, Fast-Forward/Rewind/ Auto Spacing	AD
217	JKNBM0365AFSA	Key, Reverse APSS/Forward APSS/Play/Record/Pause	AD
218	JKNBM0374AFSA	Button, Cassette Eject	AG
219	JKNBN0419AFSA	Knob, Tape Selector Switch	AH
220	JKNBN0470AFSA	Knob, Record Level Control, Left Channel	AH
221	KCOUB0102AFZZ	Tape Counter	AL
222	LANGF0412AFZZ	Bracket, Power Transformer Strengthen	AA
223	LANGQ0778AFZZ	Bracket, Record Level Control/ Tape Selector	AC
224	LANGQ0780AFZZ	Bracket, Peak Level Display Meter	AD
225	LANGQ0781AFZZ	Bracket, Microprocessor P.W. Board/Mechanism Drive P.W. Board	AF
⚠226	LBSHC0004AGZZ	Bushing, AC Supply Lead	AB
227	LCHSM0381AFZZ	Main Chassis	
228	LCHSZ0078AFSA	Front Frame	AQ
229	LHLDW1075AFZZ	Nylon Band, 60mm	AA
230	LHLDW9003CEZZ	Wire Holder	AA
231	LHLDZ1094AFZZ	Holder, Hall IC (IC2)	AC
232	LX-LZ0055AF00	Rivet, Line Input and Output Sockets Retaining	AA
233	MLEVF1086AFZZ	Lever, Dolby NR Switch Interlocking	AC
234	MLEVF1232AFFW	Lever, Power Switch Interlocking	
235	MLIFP0009AFZZ	Damper, Cassette Holder	AD
236	MRODM0075AFFW	Rod, Record/Playback Selector Switch Interlocking	AB
237	MSPRC0219AFFJ	Spring, Eject Button	AA
238	MSPRD0287AFFJ	Spring, Cassette Holder	AA
239	MSPRD0309AFFJ	Spring, Cassette Tape Guide, Right Side	AA
240	MSPRD0310AFFJ	Spring, Cassette Tape Guide, Left Side	AA
241	NBLTK0178AFZZ	Belt, Tape Counter Drive	AB
243	PCOVU9113AFZZ	Cover, Indicator	AB
244	PCUSG0136AF00	Cushion, Front Frame	AA
245	PCUSS0130AF00	Cushion, Peak Level Display Meter Filter/Meter Bracket	AA
246	PCUSS0131AF00	Cushion, Meter Bracket	AA
247	PCUSS0135AF00	Cushion, Cassette Holder	AA
248	PFILW0025AFSA	Filter, Peak Level Display Meter	AK
249	PFLT-0330AF00	Felt, Cabinet	AA
250	PFLT-0405AFZZ	Felt, Front Leg	AA
251	PFLT-0440AF00	Felt, Rear Leg	AA
252	PGIDM0089AFSB	Guide, Cassette Tape, Left Side	AB
253	PGIDM0090AFSB	Guide, Cassette Tape, Right Side	AB
254	PRDAR0230AFZZ	Heat Sink	AD
255	PSLDM3199AFZZ	Shield Plate, Front Frame	AC
256	PSHEK0059AFZZ	Sheet, Cassette Tape Eject Lever	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
257	PSLDC3104AFZZ	Shield Plate, Mechanism Control Key Unit	AE
258	PSLDM3190AFZZ	Shield Plate, Record/Playback Amplifier P.W.Board	AD
259	PSPAN0051AFZZ	Spacer, Heat Sink	AA
260	PSPAS0125AFSB	Spacer, Power Switch	AB
261	PSPAS0118AFSA	Spacer, Mechanism Operating Keys/Timer Recording Button/ Input Selector/Dolby NR Switch Button	AE
262	PSPAZ9002AGZZ	Spacer, Heat Sink	AA
263	PSHEZ0101AFZZ	Sheet	AB
⚠264	QACCV0001AGZZ	AC Supply Lead	AL
265	QHWS-3001AGFN	Lug	AA
266	QLUGP0111CEFW	Lug, P.W. Board	AA
267	QTANZ0160AFZZ	Terminal	AA
270	LX-WZ3017CEFN	Lockwasher	AA
271	PSHEK0060AF00	Sheet, Shild Plate	AA
272	TSPC-0730AFZZ	Label, Specification	AF
273	PSPAB0103AFFW	Spacer, DIN Socket	AA
⚠F501,502	QFS-C122CAGNI	Fuse, T 1.25A/250V	AE
⚠	QFSHD1054AFZZ	Holder, Fuse	AA
	QPLGA0250AFZZ	Adaptor, AC Power Supply Lead	AF
J101	QJAKE0076AFZZ	Jack, Microphone, Left Channel	AF
J201	QJAKE0076AFZZ	Jack, Microphone, Right Channel	AF
J202	QJAKJ0085AFZZ	Jack, Headphones	AE
SO1	QSOCD0890AFZZ	Socket, Remote Control	AG
SO2(A~D), SO3	QSOCZ4903AFZZ	Socket, Line Inputs/Outputs SO2 – A, B Line Outputs SO2 – C, D Line Inputs SO3 – DIN Record/Playback	AG
⚠SO501	QSOCE0558AFZZ	Socket, Voltage Selector	AG
SW1(A~N)	QSW-S0300AFZZ	Switch, Record/Playback Selector	AK
SW2(A~D)	QSW-R0182AFZZ	Switch, Tape Selector	AM
SW3(A,B), SW7	QSW-P0279AFZZ	Switch, SW3; Input Selector SW7; Timer Recording	AH
SW4(A~D)	QSW-P0280AFZZ	Switch, Dolby NR	AF
SW5	QSW-S0259AFZZ	Switch, Cassette Detector	AF
SW6	QSW-S0293AFZZ	Switch, Erase Protection	AE
⚠SW8(A,B)	QSW-P0158AFZZ	Switch, Power	AL
SW9	QSW-Z0085AFZZ	Switch, Mechanism Control Unit	AV
ME601	VVKBG-50Z//-1	Peak Level Display Meter	AY
CNP1	QCNCM198CAFZZ	Plug, 3 pin	AB
CNP2	QCNCM416EAFZZ	Plug, 5 pin	AC
CNP3	QCNCM437DAFZZ	Plug, 4 pin	AB
CNP6	QCNCM440JAFZZ	Plug, 9 pin	AC
CNP101-A	QCNCM316BAFZZ	Plug, 2 pin	AB
CNP101-B	QCNCM102FAFZZ	Plug, 6 pin	AB
CNP601	QCNCM435GAFZZ	Plug, 7 pin	AB
CNS1	CCNCW090CAF12	Socket, 3 pin with Lead	
CNS2	CCNCW092EAF03	Socket, 5 pin with Lead	
CNS3	CCNCW091DAF14	Spcket, 4 pin with Lead	
CNS4	CCNCW098MAF02	Socket, 12 pin with Lead	
CNS6	CCNCW096JAF14	Socket, 9 pin with Lead	
CNS101(A,B)	QCNW-1067AFZZ	Socket, 2 pin and 6 pin with Lead	
CNS601	CCNCW094GAF07	Socket, 7 pin with Lead	
SOL1	RPLU-0133AFZZ	Solenoid, Playback	AN
SOL2	RPLU-0133AFZZ	Solenoid, Pause	AN
SOL3	RPLU-0134AFZZ	Solenoid, Rewind	AP
	QCNW-0866AFZZ	Wire, 5 pin, 70mm	AB
	QCNW-0949AFZZ	Wire, 6 pin, 135mm	AB
	QCNW-0950AFZZ	Wire, 6 pin, 230mm	AD
	QCNW-0951AFZZ	Wire, 3 pin, 280mm	AC
	QCNW-0952AFZZ	Wire, 3 pin, 350mm	AC
	QCNW-0127AFZZ	Connecting Cord, RCA Pin Type	AL
	SPAKA0664AFZZ	Cushion, Packing Case, Left	AH
	SPAKA0694AFZZ	Cushion, Packing Case, Right	AF
	SPAKC1715AFZZ	Packing Case	AM
	SSAKA0024AFZZ	Polyethylene Bag, Operation Manual	AA
	SSAKH0038SEZZ	Polyethylene Bag, Unit	AB
	SPAKX0352AFZZ	Packing Add	AD
	TINSZ0278AFZZ	Operation Manual	AM
	TLABZ0143AFZZ	Label, Metal	AA
	TMAPC0760AFZZ	Schematic Diagram	

P.W.B. ASSEMBLY (Not Replacement Item)

DUNTU0066AF03 (Combined Assembly)	Main, Microphones, Headphones	—
DUNTX0036AF02 (Combined Assembly)	Mechanism Drive, Microprocessor, Hall IC, Remote Control	—
DUNTZ0424AF01	Meter	—
DUNTW0026AF01	Mechanism Relay	—

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